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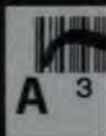
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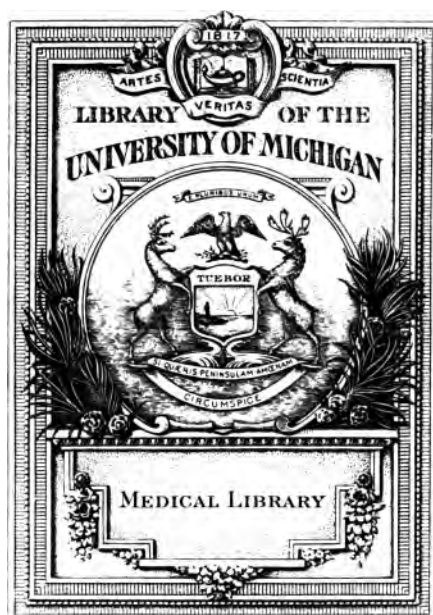
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THE

PHILADELPHIA JOURNAL

OF THE

126405

MEDICAL AND PHYSICAL SCIENCES.

SUPPORTED BY AN ASSOCIATION OF PHYSICIANS,

AND

EDITED BY N. CHAPMAN, M. D.

PROFESSOR OF THE INSTITUTES AND PRACTICE OF PHYSIC AND CLINICAL
PRACTICE, IN THE UNIVERSITY OF PENNSYLVANIA.

"In the four quarters of the globe, who reads an American book? or goes to
an American play? or looks at an American picture or statue? *What does the
world yet owe to American Physicians or Surgeons?*"

Edinburgh Review, No. LXV.

VOL. III.


PHILADELPHIA:

M. CAREY & SONS—CHESNUT STREET.

William Fry, Printer.

1821.

Eastern District of Pennsylvania, to wit:

 **BE IT REMEMBERED**, that on the thirtieth day of October, in the forty-fifth year of the Independence of the United States of America, A. D. 1821, M. Carey & Sons, of the said District, have deposited in this office the title of a Book, the right whereof they claim as proprietors, in the words following, to wit:

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Edinburgh Review, No. LXV."

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D. CALDWELL,

Clerk of the Eastern District of Pennsylvania.

CONTENTS.

I. An Account of the Yellow Fever of Natchez, as it prevailed in the Autumn of 1817 and 1819. By A. Perlee, M. D. Read before the Academy of Medicine of Philadelphia,	1
II. Some Account of the New Italian Doctrine of Counterstimulus. By John Bell, M. D.,	18
III. Some Observations on the Propriety of explaining the Actions of the Animal Economy by the Assistance of the Physical Sciences. By John D. Godman, M. D. Professor of Physiology in the Philadelphia Museum, and Lecturer on Anatomy, &c. Read before the Philadelphia Academy of Medicine,	46
IV. Historical and Critical Observations on Syphilis. By A. J. L. Jourdan, M. D. Translated from the French, by R. La Roche, M. D.—(<i>Continued from No. 4.</i>)	55
V. An Account of a Monster. Communicated in a letter to the Editor by John K. Mitchell, M. D.,	78
VI. The History and Treatment of Bony Tumours. By W. Gibson, M. D.	86
VII. Observations on the Character and Treatment of the Spotted Fever, as it appeared in the lower Northern Neck of Virginia, and the adjacent country, in the Fall and Winter of 1814 and 15. Communicated in a letter to the Editor. By R. Murphy, M. D. Read before the Philadelphia Academy of Medicine,	110
VIII. Cases illustrative of the Efficacy of Sulphurous Fumigations, in certain Cases—with preliminary Remarks. By G. Emerson, M. D. Read before the Philadelphia Academy of Medicine,	126
IX. Case of a large mass of an Amalgam of Tin and Mercury retained in the Bowels. Communicated in a letter to the Editor. By Joseph A. Gallup, M. D.	146

REVIEWS.

- X. Versuche ueber die Wege, auf welchen Substanzen aus dem Magen und Darmkanal ins Blut gelangen; ueber die Verrichtung der Milz und die geheimen Harn-Wege. Von T. Tiedemann und L. Gmelin, Professoren in Heidelberg. Pp. 119, 8vo. Heidelberg, 1820, - - - - 149
- XI. On the Efficacy of Oleum Terebinthinæ in Puerperal Fever. By J. Brennan, M. D., Dublin. - - - - 165
- XII. Memoir on Angina Pectoris, which obtained the prize offered by the Medical Society of Paris. By L. Jurine, Corresponding Member of the National Institute, - 169
- Medical and Philosophical Intelligence,* - - - - 179
-

TO READERS AND CORRESPONDENTS.

We wish it to be distinctly understood, that we neither have, nor never will receive any pecuniary compensation as editor of this Journal. The only motives which led us to engage in the enterprize, are announced in our Prospectus, and which will be found of a character liberal and wholly disinterested. To this subject, attention is now called, with a request, that communications for the work, and all matters of correspondence relative to it, may be addressed to the publishers, M. Carey & Sons.

In an elaborate and well managed defence of the "National Pharmacopœia," which has just appeared, we regret to find that our friend, Dr. Bigelow, has seen cause to complain of injustice having been done to him in a review of that work in our last number.

Of the merits of the Pharmacopœia, we pretend not to judge ourselves, having scarcely even now looked into its pages. The review was furnished by one of the most profound of our medical scholars, and whose station and particular course of study, entitle him to be heard with much authority on such a subject. That the critical decision which he has pronounced was the result of conviction wholly aside from captiousness or malevolence, is unquestionable. As regards Dr. Bigelow personally, we are persuaded, such is the estimation in which his character, talents, and attainments are held in this section of the country, that, had it been known that he materially contributed to the work, it would have received a much graver and respectful notice.

He will soon see, in a review of an original work, not marred by any copartners in the undertaking, what are the dispositions of this Journal in relation to himself and the school to which he belongs.

Our next number will contain papers from Drs. Physick, Dewees, Gibson, Patterson, Caldwell, Baxter, Dixon, Atkins, Morgan, and Staughton—to whom, and many other valuable correspondents, we tender our acknowledgments.

EXPLANATION

OF

PLATE II.

- A. A. A. A. The tumour opened to display its structure.
- B. Extensor communis.
- C. Tibialis Anticus.
- D. Peroneus longus thrown from its natural situation.
- E. The tibia.
- F. The fibula.
- G. The tendons of the peronei muscles.
- H. The skin turned back.
- I. The upper tumour covered by a thick membrane.



PLATE III.

Represents the same preparation dried.

- A. The upper end of the fibula.
- B. B. B. The bony interstices, and reticulated structure of the tumour.



THE
PHILADELPHIA JOURNAL
OF THE
MEDICAL AND PHYSICAL SCIENCES.

ART. I. *An Account of the Yellow Fever of Natchez, as it prevailed in the Autumn of 1817 and 1819.* BY A. PERLEE, M. D. Read before the Academy of Medicine of Philadelphia.

NATCHEZ is situated upon the eastern bank of the Mississippi, in Lat. 33. 31 46. N. Long. 6 6. W.: on an elevation of about one hundred and fifty feet above the surface of the river at low water. The shore forms a high bluff or precipice—which rising rather above the site of the town, excludes the view of the river, running close to the foot of it, when raised by the vernal floods. The surface is very undulating, so as to require an extensive digging down of hills and filling up of hollows to make streets conveniently level. The soil is a rich black mould: the sub-earth, sand, clay, &c., as low at least as the surface of the river. The whole mass exhibits strong marks of being oceanic alluvion, extremely light and soluble in its texture. The country adjacent on the same side of the river has generally the same appearance, with a gradual, but irregular, declivity for about three miles eastward to the creek St. Catherine. The fragility and solubility of the earth, render it liable to be washed into deep and numerous ravines, which become receptacles of water and various substances liable to putrefaction. The western side of the

river is one immense flat of alluvion, containing extensive swamps, and interspersed with many lakes and ponds.

The site of the city, in its natural state, afforded as good a prospect of salubrity as any in the country, being sufficiently remote from any swamp on the same side of the river, not to be affected by its exhalations, secured by the bluff from those of the margin of the river, and the swamps of the western side, and so much elevated as to have a free ventilation. The streets are wide and straight, and have slope enough to carry off the water, when properly improved. The houses are built of wood and brick. The population is near three thousand,—and previously to the year 1817, never suffered from an epidemic fever—though in the summer and autumnal season, they were not exempt from the prevailing bilious fever of the country, which occasionally assumed the degree of violence that marked the late epidemic. But such cases being sporadic, were never propagated.

The western section of the State of Mississippi abounds in those causes, which in warm climates, or seasons, generally produce bilious fever. A soil of extreme fertility, having an immense vegetable production, the leaves and offal of which are annually deposited upon the surface—which by its declivities admits an accumulation in hollow or flat places, when becoming saturated with moisture, they soon run into a state of putrefaction.—Extensive swamps filled with putrescent substances—numerous creeks and *bayous*,* which frequently overflow their banks, leaving them covered with a sediment that emits very offensive exhalations—and the western boundary forming the bank of the Mississippi, which, by the subsidence of its waters, exposes an immense surface to the sun, form other prolific sources of pestilential emissions.

In addition to these natural sources, ought to be mentioned another cause, produced by art. The country gene-

* A provincial appellation given to gullies or ravines that occasionally carry off water.

rally, labours under the inconvenience of a great want of water in the dry seasons, particularly for the use of stock. To obviate this, recourse has been had to the very pernicious expedient of forming ponds by building dams across hollow places—several of which were formed on almost every plantation. They became, of course, partly filled with vegetable matter, such as leaves, grass, and brush, and also with large quantities of animal excrement. Of their condition, after exposure to the summer heat, or of the effect of the exhalations from them on the health of the place adjacent, it is unnecessary to speak.

These causes are brought into operation effectually by the great degree of heat and moisture that occurs in the summer. Hence, those seasons are most unhealthy, which have the largest quantity of rain and highest degree of heat. The summer and autumn of 1819 were the most sickly ever known in this country. The annexed meteorological table will show that the average temperature of the summer months of that year, and the quantity of rain which fell in July and August, were greater than for the nine years recorded.

The salubrity promised by the natural topography of Natchez, has been evidently impaired by the means used to improve the site of the town. The earth of which the hills that have been dug down were formed, contains numerous particles of partially decayed vegetable and animal substances, which, when exposed to heat, air, and moisture, quickly undergo the putrefactive process. The earth itself being loosened, absorbs large quantities of water, which retained, assists the operations of this laboratory of pestilential exhalations. The natural water courses being obstructed, ponds are formed, which soon stagnate—and at every fall of rain, receive copious additions of filth. The cellars in many parts of the city, particularly those situated in the loose new made earth, are liable by every copious rain, to become partly filled with water—and frequently containing quantities of putrescent matter, form another very

obvious cause of disease. In consequence of the filling up the streets and allies, the back yards of many houses are lower than the adjacent ground—and having no drain, admit of large accumulations of kitchen offal and other offensive matter. The streets not being paved, are by every considerable rain covered with mud several inches in depth, which, being mixed with the excrements of the herds of horses and cattle, with which they are generally crowded, emit a most offensive effluvium, in warm moist weather. The privies are also very much neglected, and being frequently so situated as to have their sinks receive water, are abominably fœtid. The burying ground is another nuisance of a most noxious character. Located almost in the compact part of the city, and the earth being of the lightest texture, very partially prevents exhalation from the dead bodies deposited there, many of which were buried, during the prevalence of the epidemic, in very open or carelessly made coffins, in shallow graves. The effluvia hence arising were exceedingly offensive in the warm still mornings and evenings of the latter part of 1819.

In addition to all these causes, which would make a *Montpelier* sickly, there is a general neglect of cleanliness among the inhabitants in their cellars, yards, out-houses, &c. Can it be doubted that such causes are not amply sufficient to produce malignant fever, in a climate where the temperature, for at least five months in the year, is as high as eighty of Fahrenheit—the average temperature of the whole year, not below 65—and the quantity of rain as much as 55 inches?

The meteorological table referred to, exhibits an equability of temperature not to be found in any other latitude in the United States, and which, probably, would be conducive to the utmost degree of health, were it not for the causes enumerated. The cultivation of the adjacent country is rapidly improving, and the local causes now existing can be removed with great facility and at small expense. I have not a doubt that our city may be made, and I hope will become, one of the

most healthy in the Union. *Boston, Newport, New-London, New-York, Philadelphia, Baltimore, Wilmington, N. C. and Charleston*, and almost all our large towns, were notoriously sickly at a period when the causes that have been stated to produce the sickness of Natchez, existed within them, or about their vicinity. Equally is it manifest, that their healthiness has been promoted in proportion to the attention bestowed upon the suppression of these pestiferous sources. With these facts and examples before us, why do we not, by proper efforts, remove from us the danger of another devastating epidemic?

The extreme difficulty of obtaining correct information respecting the epidemic of 1817, (having myself become a resident since that period), will necessarily render the account of it, very concise and imperfect. I have been informed that cases of fever marked by the symptoms characterizing yellow fever, had frequently been observed before that year, but those cases were sporadic, and the disease did not extend beyond the individuals of its first attack. It was then generally imputed to local causes—and though there was a constant and uninterrupted intercourse with New Orleans, where it exists to a greater or less extent almost every autumn, no suspicion was entertained of its having been brought from that place. More than one instance is related of boats arriving with their crews sick, who were carried into the town, and died of yellow fever, without any further extension of the disease. An exceedingly interesting case of this kind, was communicated to me by our late lamented fellow citizen, Daniel D. Elliot. In the autumn of 1804, a barge arrived with a crew of upwards of thirty men, almost all of whom were sick. They were landed, brought into the town, and there all, except two, died—none of the attendants or residents of the place being attacked.

The stimulus given to mercantile enterprise in this place, by the high price of the produce of the adjacent country (cotton) after the termination of the late war, caused a

rapid increase of population and wealth, and a correspondent improvement. Many new buildings were erected—arrangements were made and partially executed, to reduce, to a convenient level, the irregular surface of the site of the town, and that change in its localities was effected which has been stated. Causes of insalubrity were thus brought into existence, much greater in number and extent than before, and created a general state of predisposition, which required only a small concentration of power, to produce a sweeping epidemic. By a reference to the meteorological table it will be perceived, that the temperature of July, August and September, was as high as 79, and the quantity of rain very great. In the beginning of September, when the population was highly susceptible, the Washington steam-boat reached us from New-Orleans, with persons on board ill of yellow fever, some of whom were landed, and several young men from town went on board, who were all taken sick soon after, and died. The disease spread rapidly, and with most destructive malignity. For some time it had its sway over the whole city. On the 28th, the physicians publicly announced the existence of the *yellow fever*, and a large portion of the population retired to the country. On the ninth of November there occurred a severe frost, which at once arrested its progress, and permitted the inhabitants to return in safety to their homes. The number of deaths was estimated at about three hundred.

The visitation of this year induced the adoption of measures to obviate a recurrence of the fever. The legislature passed a law, establishing a board of health, quarantine, &c. But unfortunately, the principal attention appears to have been directed to the danger from its importation or introduction from abroad. The local causes were suffered not only to exist, but to acquire a most dangerous augmentation.—The summer of 1818, was remarkably dry: the quantity of rain did not amount to one half that of the preceding summer. The health of the inhabitants remained

unimpaired. This led to a dangerous security in the minds of the people. Hopes were entertained that such another calamity would not occur—founded only, I believe, on the institution of a board of health, and quarantine system. The winter and succeeding spring were mild, and no particular disease prevailed. The summer set in very warm. The month of June, though warm and rainy, still continued healthy. July was attended with an increase of temperature, and an extraordinary quantity of rain, greater than had fallen in any one month for nine preceding years. During the last four days of the former, and the first three of the ensuing month, there were tremendous torrents, occasioning extensive and destructive inundations of all the low grounds adjacent to the water courses. At the subsidence of this flood, hundreds of acres along St. Catherine's creek, were covered with sediment, from a few inches to several feet in depth, which, after it had been exposed to the sun, and the surface become dry, cracked open, and emitted most offensive exhalations from the putrefying substances beneath. Great numbers of cattle, sheep and hogs, were drowned, and afterwards, lay putrefying upon the surface. The sickness and mortality prevailing along the whole course of this creek, evidently resulted from this inundation. The streets of Natchez were completely deluged, and became a bed of mortar. All the low places that had their drains obstructed were filled, and also most of the cellars in a greater or less degree. This rain was followed by extremely hot weather, with a very bright sun.—The months of September and October were very warm and dry.

About the middle of July many cases of intermittents were observed, mostly attended with copious excretions of bile. The negroes upon the plantations suffered severely. Not a few who recovered from the first attack of fever, were carried off by violent diarrhœas. The type of the fever progressively assumed a more serious character. About the beginning of August, remittents or double tertians, greatly prevailed, and several persons died. The increased number of cases

that occurred in the beginning of September, excited considerable alarm, and induced the board of health to request the physicians to report the first cases they might observe indicative of malignity. On the first of the month, I was directed to visit four men lying sick at the upper end of Main street, who were said, by the neighbours, to have the yellow fever. After a careful examination of them, I reported their disease to be a severe bilious remittent—unattended with symptoms of malignancy, but that I apprehended, if the severe warm weather continued a few days longer, such symptoms would probably appear. I suggested that the large pond of stagnant water very near the house was the cause of this sickness, and advised it to be drained, the bottom scraped, and covered with lime. This was not done till the sixth, and then very imperfectly. On the third, one of these men died, and it was asserted by the good woman of the house, with black vomit. The attending physician did not report it as a case of yellow fever, the existence of which in Natchez he obstinately denied. He fell a victim to it himself. On the second day of the month, I was called to visit three men in the same neighbourhood, who had been employed in a workshop very near the before mentioned pond. At the same time, another man, who belonged, and had worked in the same shop, was taken sick, and removed farther down the street, where he died on the fourth, and was formally reported by his physician to have died of yellow fever. On the evening of the third, one of my patients was removed to the lower part of the town, where I found him next morning with every pathognomonic symptom of the epidemic. On the same day a man died at the Natchez Coffee-House, with black vomit, sallowskin, and such other symptoms as left no doubt on the minds of the medical men who saw him, of his disease being yellow fever. The three cases being reported to the board of health, they immediately published a handbill, announcing the existence of the disease, and advising the inhabitants to remove into the country without delay. These facts coming under my

own observation, I can attest the truth of them, and have no doubt that the fever originated from local causes exclusively. By some it was alleged, however, that it was brought from New-Orleans by the steam-boat *Alabama*—which arrived opposite Natchez on the twenty-eighth of August, with several of her crew sick, four of whom were landed at the village of Vidalia, and there died, and as stated by the physician of the board of health, of malignant fever. It was further asserted, that one of the passengers had come over to Natchez, and lodged in the house at the upper end of Main street, where the disease first made its appearance. This assertion was contradicted at the time, and an investigation, soon afterwards instituted, to ascertain the truth, went to the same effect. The man, a little while before his death, which did not occur until four weeks after his arrival, gave a written certificate, declaring that he was not a passenger on board the *Alabama*—that he came from the town of Alexandria, Louisiana, to the mouth of Red river, in the steam-boat *Alexandria*—that he was there landed on the eastern shore of the Mississippi, and travelled on land up to Natchez. He arrived on the 29th of August, and engaged in the employ of Mr. Clement, a blacksmith. Three days after his arrival (during which he had worked and lodged close to the noxious pond before mentioned), he was attacked with *bilious remittent fever*, from which, after ten days illness, he partially recovered—again relapsed, and ultimately died, towards the close of the month of September. By Mr. Clement I was assured, that the above statement was correct and true, to his certain knowledge. The steam-boat, on her arrival, was immediately placed under the *surveillance* of the board of health, and all intercourse with Natchez prohibited.

On the publication of the handbill by the board of health, as many of the citizens as could, withdrew to the country. The selectmen, on the 10th of September, ordered a census to be taken, and found the population to amount to 910—

including persons of every description. Several poor families who had no place to retire to, were taken out, and huted in a fine healthy situation about two miles from the city, where they were maintained at the public expense. The disease extended its prevalence amongst the remaining inhabitants, and many who went to the country, suffered from previous infection.

As is generally observed, the disease assumed various shades or degrees of violence, from a slight indisposition that would scarcely cause complaint, to the utmost degree of malignancy: and every indisposition that occurred, within the sphere of the contaminated atmosphere, put on more or less of the symptoms of the prevailing epidemic. Intemperance, excessive fatigue, loss of sleep, grief, or any of those causes that debilitate the system, very frequently brought on the disease.

No class of persons were absolutely exempt from this fever. Whites, mulattoes, negroes, Indians, indigenes, old residents, and strangers, were all sufferers. Children and adults were equally obnoxious to it. The only considerable difference was, that there were fewer females than males attacked, and the Spanish and French inhabitants appeared to escape more generally than any other persons, which I presume may be imputed to their peculiar mode of living.

The epidemic continued to prevail with little variation in virulence, until about the middle of November, when the weather becoming cooler, it began to subside. The number of new cases was less, and about the first of December, there having been a moderate frost, the board of health quickly informed the inhabitants, that they could return to their homes with a reasonable prospect of safety.

As far as a general description will apply, the symptoms of this fever were similar to those which have been recorded of the several epidemics of the same kind that have prevailed in various parts of the United States.

Weariness or sense of lassitude—shooting pains in the head, back, and extremities—redness or inflammation of the eyes—dryness of the skin, with a remarkable feeling of constriction, as if the skin was contracting upon the body—loathing of food—costiveness—paucity of urine, &c. These symptoms, if not relieved by the remedies, were, in the course of from six to twelve hours, followed by vomiting of frothy matter—great irritability of the stomach—an indescribable sensation about the *precordia*, excessively distressing—feeling somewhat as if the stomach was violently distended, and at the same time empty—liquids, when swallowed, producing a noise like pouring them into a bottle. The pulse was generally little excited. The bowels were difficult to move, and the fæces dark coloured and very fætid—the skin was dry, and seldom warmer than natural—the tongue was slightly furred, of a yellowish-brown colour. These symptoms were succeeded by yellowness of the skin, similar to that of a dark mulatto. But such appearance was not general. In this stage, there was frequent vomiting of dark coloured matter, with violent and distressing hiccup, followed by great prostration of strength, subsultus tendinum, and death. The duration of the disease was extremely variable. Many died within three days, whilst others continued sick for two weeks, or longer. In some it appeared as a mild remittent, and proceeded ten or fifteen days, without any dangerous symptoms—when suddenly the worst symptoms would take place, and carry off the patient in a few hours.

A red watery eye, with a dull aspect—preternatural floridness of the countenance, without increased heat—that distressing sensation in the region of the stomach before spoken of, and vomiting of black matter, were the signs of the greatest danger, and generally proved the harbingers of dissolution.

Early in October, many symptoms were observed, which indicated a near approach to the character of malignant

scarlatina, such as an eruption of red spots upon the face, neck, and breast—a deep crimson colour of the fauces, tongue, and internal parts of the mouth—frequently accompanied with an effusion of blood—great prostration of strength, &c.

Towards the end of this month, and beginning of November, the disease assumed many of the diagnostic symptoms of yellow fever, approaching in some measure, the character of *typhus gravior*. An attack came on with great prostration of strength, without much pain—and soon afterwards there was a disposition in the intestinal canal to diarrhœa—weakness and slowness of pulse—profuse hæmorrhage from the eyes, mouth, nose, and in females, from the *uterus*. The stools were frequently very copious, and apparently mixed with grumous blood. Eruptions of petechiæ resembling flea bites, were common. An increase of these symptoms was attended with so much exhaustion of strength, as to terminate fatally, death making its approach as a profound and oppressive sleep, seeming to result from an abstraction of the vital power, rather than its expenditure from violent morbid excitement. Putrefaction rapidly followed death, and in some cases appeared almost to precede it. A few patients, who had laboured under these symptoms, expired in the most awful convulsions. I saw two cases that terminated in buboes that sphacelated, and were a long time healing—both, however, ultimately recovered. After the subsidence of the more violent symptoms, there was great liability to relapse, and convalescence in general went on very slowly. The slightest fatigue, exposure, or improper diet, frequently produced a return of indisposition, and which was not without danger.

The severity of this epidemic, was manifested in its operation upon brute animals. Horses, cows, dogs, poultry, and even the wild deer in the forests, suffered. The mortality among them was indeed very considerable. During the same period, a general depression of health appeared to

be caused. Those who were not absolutely diseased, laboured under some indisposition.

The treatment pursued in this epidemic, varied in the hands of different practitioners. The necessity of venesection did not exist. In some patients of plethoric habits, it was used without, however, having any good effect. There was none of that mitigation of suffering, which this powerful remedy produces, when appropriately employed. The mercurial plan was by far the most successful, applied early, and judiciously managed. The little intercourse amongst the members of the faculty, places it out of my power to give a particular account of the practice of others. I must, therefore, confine my observations to my own. From some previous experience in the comparative success of the several modes of treatment, that had come under my observation in the Atlantic cities, and the West Indies, I had formed a decided partiality for the bold and free use of mercury, especially where the typhoid diathesis does not exist to any considerable extent. The result of my trials of it in this epidemic, confirmed my opinion of its efficacy. Whatever may be the nature and *modus operandi* of the causes of the disease, the symptoms in the first stage indicate the use of remedies, whose virtues are amply contained in the milder preparations of mercury. The disordered state of the alimentary canal, evidently points out the necessity of evacuants and correctives. The dryness and torpor of the skin—the use of diaphoretics. The impaired vigour of all the functions, inforce the application of stimuli and excitants. Though I do not mean to assert that mercury alone suffices to effect a cure, it deserves to be considered the principal remedy. But various other measures may be advantageously used in the cure of the disease, and are in most cases indispensable. Cold water applied to the surface, when the febrile heat was great, proved of the highest service. Notwithstanding the popular prejudice, no bad effects need be apprehended from the simultaneous use of mercury. These affusions, while they moderate heat, reduce arte-

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rial excitement, calm the commotions of the nervous system, remove headache, and often induce a refreshing sleep. The frequent occurrence of local affection creates the necessity of topical applications, and while they excite the torpid vessels of the part, produce a strong sensation, and thereby rouse the whole system. Blisters answer well the purpose of the above indication, and also open an avenue through which mercury can be introduced with advantage. When the emergency was very great, I frequently resorted to the use of scalding water, which answered the purpose completely in a few minutes. The first case in which I applied it, the patient had passed to the fifteenth hour of the attack, without any remedy, and was lying in a state of torpid insensibility, from which he could not be roused by loud calling and shaking. His skin had much the look and feel of a person just dead. A stream of scalding water was poured from the spout of a tea-kettle, over the inner surface of the forearm and legs, by which he was instantly revived, rose up in his bed, and recognized the attendants: he ultimately recovered.

There are some anomalous symptoms that require particular notice. Great heat of the surface, as before stated, was easily overcome by ablution, with cold water, or vinegar and water, or proof spirit. The cuticle was sometimes so dry, as to have an appearance of being tanned—and such was the torpor of the capillary vessels of the true skin in other instances, as to admit in places of extravasation of their contents, raising purple or dingy spots. This affection belongs to a severe grade of the disease, and demands the application of external remedies, for when it exists, the stomach is generally too irritable to retain any of the diaphoretics. In such cases, where there was considerable degree of general vigour remaining, which, however, seldom happened, the affusion of cold water answered well. But the debility and exhaustion being great, this remedy is inadmissible, as the small residue of excitement might be consumed. I have used successfully, under such circumstances, smart

friction over the whole body, with sweet oil and alcohol, as warm as the hand would bear it. The oil seems to soften the hard dry cuticle, and the alcohol being propelled through the pores, stimulates the torpid capillaries, and causes also the absorbents to remove the extravasated fluids, while by association, the stomach and intestinal canal receive a portion of the benefit of the application.

The frequent administration of large doses of calomel, as *ten grains every hour*, until copious alvine evacuations are produced, affords a better prospect of accomplishing the first indication than by any other medicine. It speedily and effectually brought on a free *catharsis*, and from the quantity introduced, the system soon becomes charged with it, so far as to excite salivation. As the latter effect is most desirable, I resorted to the simultaneous application of blisters, the primary utility of which I have already explained. As soon as the cuticle became loosened, I removed it, and dressed the denuded skin with strong mercurial ointment. This promptly occasions a copious purulent discharge from the surface, and by the rapid absorption of the mercury, in a few hours, a *ptyalism*. I saw no case, out of upwards of one hundred, in which this mode of treatment was pursued, that the worst symptoms of malignancy did not subside after the free evacuation of the bowels, and the occurrence of the sore mouth. When the accommodations of the sick were good, the nurse judicious and attentive, and the patient was not exposed to the continued operation of the *cause*, I always felt the strongest hopes of recovery. If this mode of treatment can be executed within twelve hours from the time of attack, I have no doubt that it will succeed in nineteen cases out of twenty. Even where the disease does not completely subside, it will assume the form of a mild remittent, easily cured and devoid of danger. But when the system has been a much longer time suffering under the disease, when the primary cause still continues its influence, when the morbid secretions have accumulated to a large amount, the *vis vitæ* much exhausted, and the

great functions deranged, I have no confidence in it, or any other course of practice.

In the early stage of convalescence, it becomes necessary to guard against a recurrence of an attack, to which there is a frequent tendency. Care must be taken to remove (without, however, inducing too much debility by the evacuation) the putrid and irritating matter that accumulates in the bowels, and to correct its acrimony whilst retained. For these purposes, I used, with advantage, a combination of super-tartrate and carbonate of potass, in such proportions as to leave a small excess of alkali. This operates as a gentle though efficient purgative, and the fixed air evolved during the combination, renders it less disagreeable to the palate, and more grateful to the stomach—whilst the alkali corrects the acidity that generally predominates in the stomach, keeping up the irritation. An infusion of Virginia snake-root at this conjuncture, I found also highly useful. It acts as a mild tonic and diaphoretic, and is a powerful auxiliary to the other remedies. No indication existing to require evacuations of the intestines, and some degree of irritability of the stomach remaining, a mixture of the paregoric elixir and dulcified spirits of nitre, proved serviceable.

I found it infinitely important that the patient should, if possible, be removed beyond the infected district, as those who were not, were constantly liable to relapses, and were frequently carried off in a few hours, after having been for several days free from every symptom of disease, and regularly convalescing.

Persons, also, who had in a great measure recovered from the effects of the fever, and had spent some time in places in the country selected for their salubrity, were particularly liable to be attacked again upon returning to the infected atmosphere of the city. These secondary attacks were imminently dangerous, as the worst symptoms sooner followed the first feelings of indisposition, and the patients being less able to endure them, speedily expired. Several individuals who had suffered from attacks of ordinary

bilious remittent fever during the summer, and who considered their health nearly re-established before the commencement of the epidemic, died in a few hours' illness, with the worst form of yellow fever.

Meteorological Observations made at Natchez, by Winthrop Sargeant, Esq.

Latitude of Natchez, 31° 33' 46" N., longitude, 6° 6' W.

Mean temperature of each and every month in the year, and of every year from 1810 to 1819, inclusive. Also, monthly and annual rains in 225th parts of an inch, and the average of rain and temperature, with a comparative view of the temperature of each month, from the mean of ten years' observations.

	Jan.	Feb.	Mh.	Apr.	Ma.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Ann. temp.	Ann. rain in 225th parts of an inch.
1810	53	54	57	67	68	74	75	76	72	64	56	52	64	
Rain	1483	1440	411	1710	764	1171	753	697	148	37	1491	703	—	10808
1811	52	49	64	66	69	76	77	77	74	66	56	53	65	
Rain	506	689	396	1449	583	950	1944	155	80	456	1500	1544	—	10252
1812	46	51	62	66	68	76	79	76	75	62	59	47	64	
Rain	737	1230	1490	821	1950	1387	2056	2193	1294	1382	1085	384	—	16109
1813	43	49	70	71	70	75	76	77	74	60	49	50	64	
Rain	660	317	733	622	938	3743	834	2021	540	1611	2634	3079	—	17732
1814	47	59	56	64	73	79	81	80	76	68	58	44	65	
Rain	496	2040	716	3130	459	554	396	1160	241	287	4506	1442	—	16427
1815	48	50	65	72	74	78	80	79	71	68	56	52	66	
Rain	406	1391	1041	900	1117	536	911	1556	1066	42	1085	2761	—	12809
1816	44	55	64	64	71	79	83	80	75	68	56	56	66	
Rain	1088	1370	371	1360	619	605	38	699	416	156	1793	2178	—	10693
1817	50	50	63	71	71	78	80	77	73	66	57	51	65	
Rain	960	699	626	688	508	894	889	994	433	406	1715	1063	—	9875
1818	48	47	55	65	69	68	82	82	75	73	59	50	64	
Rain	504	1678	759	252	370	611	264	674	770	59	903	612	—	7456
1819	58	60	61	68	74	78	79	79	75	63	65	52	67	
Rain	425	735	569	1610	579	704	2761	1818	214	252	388	901	—	10956

Average temperature, $64\frac{10}{11}$ ths, or nearly 65°.

Average Rain, $54\frac{20}{11}$ ths, or nearly 55 inches.

Average rain of the ten preceding years, 47 inches.

January, $47\frac{2}{3}$ ths

July, $79\frac{2}{3}$

February, $51\frac{1}{3}$

August, $78\frac{2}{3}$

March, $61\frac{1}{3}$

September, $73\frac{2}{3}$

April, $67\frac{2}{3}$

October, $66\frac{1}{3}$

May, $70\frac{2}{3}$

November, $56\frac{2}{3}$

June, $75\frac{2}{3}$

December, $50\frac{1}{3}$

ART. II. *Some Account of the New Italian Doctrine of Counterstimulus.* By JOHN BELL, M. D. &c. &c.

DIVIDED into many governments and principalities, Italy presents, from these very causes, which retard her political elevation, peculiar advantages for the cultivation of all the departments of knowledge. Each state, nay, each city, has its scientific institutions, to which the governors, not less from taste than policy, extend a fostering hand, by affording the professors a support, though distant indeed from affluence, sufficient to place them beyond the call of want, and leaving them the leisure to direct their exertions to the advancement of their respective branches.

The number of schools creates a spirit of rivalry, and stimulates the teacher to a continued struggle for that species of superiority which, depending on literary merit, is the only one they can aspire to with any hopes of success. Choice libraries, museums, philosophical and chemical apparatus, attached to each university, afford the man of letters the ready means of ascertaining the originality and testing the accuracy of any opinion, thereby enabling him to advocate truth, or combat error. Men under such circumstances will not hazard rash conjectures, or sport with the public credulity. What they advance is done with caution, and canvassed by their opponents with coolness and impartiality. Hence, in that country, one medical man will not often perfect any discovery, or bring it to its full bearing and maturity, as is the case with the doctrine of which we propose treating.

Let not the physician be alarmed at the idea of another new theory come to haunt him in his studies. "To think is to theorize," said a celebrated writer—and perhaps he were right, if thinking be the combination in the mind of a certain number of facts or observations. The sententious and matter of fact philosopher, who affects to smile at systems, forgets the state of things which has preceded, and that all new theories are the result of recent discove-

ries, or of facts viewed in a new light, with a design to their novel application. Each new system should be hailed as forming an era to mark some improvement in the progress of human knowledge. Can we tell the chemists that they know less of chlorine, because they call now a simple body, what they before imagined was a compound one, and to which was affixed a very different name? And are we to dart the arrow of ridicule at their branch, because it is undergoing such repeated changes? or sneer at the study of geologists, because we see them assign the same phenomenon to two such opposite agents as fire and water?

As preliminary to the consideration of the new doctrine, I shall give a hasty sketch of the great men of Italy who have at different times, by their genius and labour, been instrumental in raising medicine to an elevated rank among other studies.

The *Mater Scientiarum et Artium* was also the nurse of modern medicine in Europe. At a time when men's minds were shrouded in the deepest ignorance and barbarism, the monks, so often and too unjustly reviled as drones in society, are well known to have been the only guardians and protectors in Christendom of all that remained to us of ancient lore. Their patient industry multiplied copies of the most valued works, including those on medicine, to which latter their situation would, in some measure, peculiarly direct their attention—since, exclusive of the calls on their assistance from those to whom they were spiritual directors, they had often to receive, as inmates of their convents, the sick and wearied knight who appealed to their hospitality—or the more ignoble serf, wounded in a skirmish for his liege master. We find, accordingly, that the first mention made of medicine as a distinct study in Italy, and consequently in Europe, was among the monks of Monte Casino in the ninth century. Not long after, Salerno began to acquire celebrity for its medical school, commenced indeed, according to Giannone, the historian of Naples, by the Saracens, though this opinion is strongly controverted by some learned Italians. Be this as it may, the

zeal for the study was greatly increased by the arrival, among the Salernitans, of Constantine of Carthage, who, after travels and studies in the east for thirty-nine years, returned to his native city, which he was soon after compelled to leave, owing to his fellow citizens regarding him as a magician. In reading the history, during this and the following centuries, of men distinguished by their learning and attainments, we are forcibly struck with the great difference in the exertions of students at that and the present time. Then, a long series of years, devoted to the acquisition of particular or general knowledge, was deemed requisite for success—and even those advanced in life were not ashamed to become the disciples and auditors of their juniors, in any province in which these latter might have excelled. Now, a man is supposed to have learned every thing before he quits college—for he seldom studies much afterwards, except it be the elementary knowledge of a profession, beyond which he cannot extend his ideas, and becomes finally nothing better than a literary artisan.

The fame of the medical school at Salerno was much extended by an address to Robert, (son of William the Conqueror,) whom they call king of England, in a series of precepts for the preservation of health. France was, in the same age, greatly indebted to Salerno for reviving the study of medicine in that kingdom. So much importance was attached to the subject in those *barbarous* ages, that the Emperor Frederick II., who was at the same time King of Naples, issued an edict, forbidding any persons to study medicine, who had not attended a course of logic for three years preceding—or to practice, until examined by a board of physicians at Naples or Salerno, and afterwards have obtained letters patent under the royal seal.

In the twelfth and thirteenth centuries, Bologna, Pisa, and other cities, began to attract notice by the successful study of medicine in their respective universities. To the former are we indebted for the revival of anatomy in the person of Mondinus, who was the first in modern times to

give us a complete work on the subject, written at the beginning of the fourteenth century.

If we are to credit some writers, the Talicosian art was more familiar to the Italian surgeons of the fifteenth century, than to those of our day, who are disposed to listen with mistrust to accounts of such operations. Branca, father and son, Sicilians, celebrated for their success in this way, seem to have been well versed in the doctrine of adhesive inflammation, and fully aware of the extent to which the application might be carried.* Belonging to this century are Achillinus and Leoniceus—the former, the first who named two of the bones of the ear, the incus and the malleus, was still more famed as a philosopher and logician—which gave rise to an expression common among the students at Bologna, when speaking of a man who was remarkable for his powers of disputation, *aut Diabolus aut magnus Achillinus*. Leoniceus, the physician and the poet, published, in 1497, an account of the venereal disease—probably the first that was written on the subject, as the disease either first appeared in Europe in 1494, or, according to others, raged with such violence, during that period, as to excite, for the first time, any general degree of attention.

The sixteenth century, so fruitful in great men, gave to

* The account of the operation is a little curious, and we shall give it as found in Tirabaschi, from whom we have chiefly taken this historical sketch.

"Singulari quoque memoria," says Fatius, (*De Viris*, &c. p. 38.) "dignos putavi et in hunc numerum referendos Brancam patrem et filium Siculos Chirurgicos: ex quibus Branca Pater admirabilis ac prope incredibilis rei inventor fuit. Is excogitavit, quonam modo desectos mutilatasque nasos reformaret, suppleretque, quæ omnia mira arte componebat. Ceterum Antonius ejus filius pulcherimo patris invento non parum adjecit. Nam præter nares, quonam modo et labia et aures mutilatæ resarcirentur, excogitavit. Præterea quod carnis Pater secabat pro sufficiendo naso, ex illius ore, qui mutilatus esse, ipse ex ejusdem lacerto detruncabat, ita ut nulla oris deformitas sequeretur; et in eo vulnere infixis mutilati nasi reliquiis usque artissime constrictis adeo, ne mutilata commovendi quopiam potestas esse, post quintum decimum, interdum vicissimum diem, carnunculam, quæ naso cohæserat desectam paulatim postea cultro circumcisam in nares reformabat tanto artificio ut vix discerni oculis junctam posset, omni oris deformitate penitus sublata. Multa vulnera sanavit, quæ nulla arte, aut ope medica sanari posse videbantur."

Italy many who distinguished themselves in the successful prosecution of the various branches of medicine, more especially in anatomy. We must, in spite of ourselves, says Portal, yield the palm to the Italian anatomists of the sixteenth century. It is then we meet with the names of Berengarius, Columbus, Fallopius, Eustachius, Fabricius ab Aquapendente, Cesalpinus, &c. Berengarius, the restorer of anatomy and surgery, has the credit of having first introduced the use of mercury in the treatment of syphilis. To Columbus and Fabricius is Harvey greatly indebted for the discovery which has immortalized his name: to the former, as well as to Cesalpinus, for the clear light in which the circulation through the lungs was displayed—to the latter for his discovery of the valves of the veins, made public in his work *De Venarum Osteolis*, 1603. We shall not stop now to examine the claims of the celebrated Paoli Sarpi, the historian of the Council of Trent, to the discovery of the circulation of the blood, as most of his countrymen are willing to concede that honour to Harvey. Were it not a kind of surgical curiosity, we should pass over, in the same way, the name of Talicotius, professor of anatomy and surgery in the University of Bologna, who has acquired a certain kind of celebrity from the surgical writings of John Bell. Talicotius was famous in his time for the art of replacing and supplying noses, ears, and lips—the method for accomplishing which, he published in a work entitled, *De curtorum Chirurgia per insitionem seu de narium et aurium defectu per insitionem arte hactenus ignata sarcienda*, &c. printed at Venice, in 1597.* Among the cele-

* The method recommended by Talicotius consists in cutting a portion of flesh from the arm, but in such a manner that the part thus cut shall adhere by a piece of skin. The arm being elevated, this part is to be applied to the place where the member is to be restored,—the nose, for example, slightly wounding the latter; and then mould, as well as possible, the flesh that had been cut, so that it may take the form desired. The arm is to be well supported in its elevated position, and the portion of flesh kept accurately applied by compress and rollers, until both wounds be cicatrized; then is the skin cut, and the arm left free, while, at the same time, the lost member is entirely replaced!

The first inventor of this method was, we are told by Barri, *de antiquit. et*

brated characters of this age may be mentioned Prosper Alpinus, whose great zeal in the study of natural history did not make him overlook that of medicine, on which he wrote several works—among which, the most conspicuous are, *De Medicina methodica*, in thirteen books—and *De præsagienda vita et mortis ægrotantium*, in seven.

The seventeenth century presents to us Malpighi, the acute investigator of the structure of the glands, and of vegetable anatomy—and of whom it has been emphatically said, that “he took nature for his model, and was her true delineator.” Belleni, uniting the greatest patience in the examination of the laws of mechanics, to a highly cultivated taste for poetry, cannot have a stronger eulogium, than in the works of Boerhaave, who affirmed, that “in the science of medicine, he was equalled by few, and excelled by none.” Sanctori-
us, too well known for his medical statics, first published in 1614, to require any particular notice here. Grateful to her illustrious teacher, Venice erected a statue to his memory, in the cloister where he was interred. To these we may add Asellius of Premona, the discoverer of the lacteal vessels.—Rammazinus, famed for his Observations on the Constitution and Diseases of the year 1690, and the four following ones at Modena, as also for Barometrical Ephemerides, published in 1695: Cæsar Magetti, the first, says Portal, who simplified the practice of surgery, and whose reflections and precepts for the cure of wounds, are worthy of a profound philosopher, and an attentive observer of nature: *Fortunatus Fedelus*, the father of medical jurisprudence, on which he treated in his work *De Relationibus Medicorum libri quatuor in quibus ea omnia quæ in forensibus ac publicis causis Medici refere salent, plenissime traduntur*, printed in Palermo, 1602. He was followed on the same subject, by Zacchia, physician to Pope Innocent X, one of

situ. Calabr. lib. ii. a certain Vincentius Vianus of Maida, who lived towards the conclusion of the fifteenth century.

“Ex hoc oppido (Maida) fuit Vincentius Vianus Medicus Chirurgus eximius, qui primus labia et nasos mutilos instaurandi artem excogitavit. Fuit et Bernardinus ejus ex fratre nepos et artis hæres: viget modo hujus filius et itideus artis hæres.”

24 Bell's Account of the Doctrine of Counterstimulus.

the most accomplished men of his age—profound in scientific knowledge, and possessing the most refined taste for the fine arts. We have from him *Questioni medico-legali*, a work extolled by Portal, in the highest terms, who adds, that no person practising medicine, ought to be without it.

It is well known, that about the middle of this century, the Peruvian bark began to be used in Italy, whence it was spread throughout Europe. Sebastian Badi or Baldi, residing with Cardinal Lugo, a great advocate for the use of the bark, learned its proper applications, and on his returning home to Genoa, published one of the first books on the subject, entitled *Cortex Peruviae redivivus*, and some years afterwards, another in defence of its use, called *Anastasis Corticis Peruviae*. He was the first, according to Haller, who prescribed the bark in tertian fevers.

Towards the conclusion of the seventeenth, and beginning of the eighteenth centuries, lived in the city of Rome, Baglivi and Lancisius, who, by their genius and skill, tended much to extend the reputation, and promote the success of medicine. The former by birth a Ragusan, well versed in classic lore, and intimately acquainted with the labours of his predecessors in the healing art, displayed, at the early age of twenty-seven, in his work *De Praxi medico*, all the sagacity, patient investigation, and cautious induction, which mark the more mature age of man, when the exuberance of imagination is checked by experience, and the judgment strengthened by study. The eight preliminary chapters of the above work, on the necessity of observation in medicine, and on the causes which have retarded the progress of the healing art, should be diligently and repeatedly perused by every student and practitioner: nor are they entitled to less attention, because the author himself occasionally falls into the errors which he reprobates. In his treatise *De Fibra motu et morbosa*, we see the difficulty which original genius has to contain itself within the bounds of fact and observation. Yet still, this very work entitles him to the reputation of having been one of the first to call

our attention to the action of the solids, a knowledge of which, has conducted us to better founded theories, and more successful practice. This distinguished man, whose society and correspondence were courted by the travellers and physicians of England, Germany, France, and Spain, died at the early age of thirty-four, at a period, when men in general, are hardly known beyond the limits of their native city, or place of abode.

To his cotemporary, Lancisius, belongs the high honour of being the first in his work, *De Noxiis Paludum Effluviis*, to give clear notions of the influence of marsh miasma, and of discriminating between the physical effects of wind, and those arising from its being the bearer of noxious exhalations.* In his dissertation *De Nativis degue Adventitiis, Romani Cæli Qualitatibus*, he impresses us with the necessity of the knowledge of medical topography, and of the bearing which it must have on the opinions and practice of the observing physician. In our country, the subject is of the first importance, and demands the serious attention, not only of the profession at large, but of the philosopher, the statesman, and the political economist. The following sentence in the introduction to Lancisius' work, should be inserted over every medical hall and college. "*Ma etenim immò Hippocratis sententiâ nemo Clinicorum alicubi esse potest vel mediocri famâ celebratus quin ante omnia, locorum in quibus se velit exercere cum positiones ac ventos tum aquas et cæteras æris et alimentorum qualitates (quæ urbium cælum constituere videntur) præbe cognoverit.*"

If we direct our view, for a moment, to the illustrious names of the last century, we see those of a Valsalva, a Morgagni, a Spallanzani, a Mascagni, and a Fontana, of themselves sufficient to support the character of their country for talents and learning. Nor ought we to overlook the philosophic Cocchi, whose ashes repose in the same

* Giannini, of Milan, in his valuable work, *Sulle Febbri*, asserts, however, that the exhalations from marshy grounds, act on the system merely by their debilitating power—producing fever, only by increasing the susceptibility to the action of exciting causes.

church with those of Galileo, Michael Angelo, Alfieri, Macchiavelli, and the most illustrious sons of Florence. Teacher alternately of Anatomy, the Institutes and Practice of Medicine, and of Natural History, Cocchi threw a charm over each. Cirillo, of Naples, was the first to recommend the external use of the corrosive sublimate, for the cure of syphilis, a practice again introduced by Hufeland, and highly recommended by him and some French practitioners. Cirillo wrote a very interesting memoir, in 1728, on the *regimen acquasum*.

To the industrious researches, and microscopical observations of Bonomo and Cestoni, are we indebted for the discovery of the *acarus scabiei*, (Linn.) the insect which, by insinuating itself under the skin, produces the itch. It was by them termed *Pellicella*. Bonomo, in a letter to Redi, in 1687, and Cestoni, in one to Vallisnerus, in 1710, describe it very minutely.

As it is not our object to give a mere citation of names, we pass over many who, in another place, would merit more particular notice, and come down to the present age, when we are met by the names of a Scarpa and Palletta, ornaments of modern surgery.—Tommasini, the acute pathologist, and eloquent professor of Bologna—Giannini, whose genius and labour threw new light on fever—Franceschi, who, in his concise and perspicuous work on baths, presents us with a division of them, at once clear and philosophical, and susceptible of the happiest practical application—Rubini, on intermittent and yellow fever—Brera, on clinical medicine and vegetable poisons, and on worms; with a host of others, all emulous to support the good cause. Pisa has deeply felt the loss of her philosophic Vacca, who had firmness enough to resist the contagion of Brunonianism, and talents to detect its fallacies, and expose its errors.*

* We pass over Borsierus, Tissot, Frank, father and son, who have, in succession, filled the chair of the Institutes and Practice of Medicine at Pavia, as they were transplanted there, from Germany, by the Emperor.

As early as the year 1796, Rasori, the translator of Darwin, and commentator on Brown, taught in his pathological lectures at Pavia, the leading feature of the new theory of "Counterstimulus," as he termed it. The unsettled state of Italy, at that time, and the consequent change in office in the scientific, as well as political departments, prevented Rasori from developing more fully, his views on the subject. It is chiefly in his history of the epidemic at Genoa, where he found himself with the French, when that city was besieged by the Austrians, that we learn the practical application of his doctrine. Occasional essays have since been published by different persons, tending to illustrate the ideas of Rasori, among which, an introductory discourse of Tommasini is, perhaps, entitled to the greatest notice, as explaining to us more fully, what he terms the "*New Italian Medical Doctrine.*" Much, however, is still wanting, to embody all the detached facts and observations, and to raise a structure, under which the medical inquirer may repose with pleasure and advantage.

We now proceed to attempt an explanation of the doctrine, from the documents and opportunities of personal observation, placed in our power.

Coinciding with the Brunonian, in the notions of life, and in the first most simple division of diseases, into two diatheses, the medical doctrine of COUNTERSTIMULUS still materially differs from it. The new principles are grounded on the fact, that, contrary to the Brunonian hypothesis, many substances have an action on the living fibre, diametrically opposite to that of stimulus, and produce of themselves, those immediate effects, which Brown attributed solely to negative powers, or a diminution of stimulus. These agents, justly called *Counterstimulants*, do away the effects of excessive stimuli, even without any evacuation, and if carried farther than required, induce those diseases, which the increase of stimulus can alone remove: hence we have, in *counterstimuli*, as in bleeding and purging, curative means for every state or morbid phenomenon, that proceeds from an excess of *stimulus*—or, *vice versa*, in *stimuli*, we have

28 Bell's Account of the Doctrine of Counterstimulus.

a remedy for the deleterious effects of *counterstimuli*. The living system is enabled to tolerate so much the greater dose of *counterstimulants*, or of *stimulants*, according as the diathesis of *stimulus*, or of *counterstimulus*, predominates, and in this toleration, a much better test is afforded of diathesis, than in symptoms.*

As an example, the new doctrine places on the same

* Luminous as is the preceding exposition of this new doctrine, it is, perhaps, presented in a light still more distinct in the subsequent extract, which we derive from an account of the same subject, in the Medical Repository of London.

EDITOR.

"This doctrine is founded on the destruction of two Brunonian idols, the objects of general adoration, down to the concluding year of the last century. The first is the identity of action, in all powers operating on the living fibre—this being, in every instance, stimulating, and varying only in degree. The second is the doctrine of indirect debility, or of a diminished excitement, occasioned by an excess of stimulation, and the appealing to this state, as the cause of the greater number of diseases. The discovery of a contrastimulant action, showed the fallacy of the first proposition—and the great preponderance of diseases of excessive, over those of diminished excitement, being clearly ascertained, the latter proposition also fell to the ground. After pursuing this subject at some length, Tommasini proceeds to offer a compendium of the new doctrine, comprised within a few propositions. These are the following :—

"1. That many substances act on the living fibre, in a manner directly opposed to that of stimulation—and that those effects which Brown attributed to a negation of stimuli, are to be ascribed to the positive action of contra-stimulants.

"2. That contra-stimulants have the power of subduing, even without any evacuation whatever, the effects of an excessive excitement—and that when they are too liberally applied, diseases are produced, which the administration of stimuli alone can relieve.

"3. That we have, in the class of contra-stimulants, a set of remedies adapted to the cure of every morbid condition resulting from excessive stimulation—and which may be used like blood-letting or purgatives.

"4. That the capability of the fibre to support large doses of contra-stimulants or of stimulants, is in proportion to the increased degree of diathesis present, whether occasioned by sthenic or asthenic powers.

"5. The discovery that this capability of supporting contra-stimulants, affords a juster measure of the intensity of the diathesis, than any that can be collected from the symptoms themselves. There are, however, three other points belonging to the doctrine, not comprehended in the above, which Tommasini is in great pains to elucidate, in several parts of his lecture :—

"1. That inflammation is invariably of a sthenic nature, and always consists in excessive excitement.

"2. That a degree of contra-stimulation, more or less durable, is inherent and essentially connected with pain.

"3. The distinction between diseases of excessive or defective stimulation, and those arising from a mere disturbance of particular parts, or from irritation."

scale, and recognizes a conformity of effect, between aconitum, digitalis, tartar-emetic, &c. and purgatives, cold, and bleeding.

Inflammation is supposed to be always sthenic, consisting in an excess of stimulus. From this same phlogosis, which is always of the same nature, proceed the greater number of fevers, whether acute or chronic, open or concealed, differing from the opinion of Brown, who admitted *indirect phlogosis*, or that from defect of stimulus, and derived a great number of inflammations, chiefly the chronic and indolent, either from a direct or indirect debility.

The fever of the phlegmasiæ, is to be viewed as the effect, not the cause of the phlogistic diathesis, with which it is allied—and we must regard, as producing certain fevers, those inflammations which, found on dissection of persons dead of puerperal fever, or tabes, or yellow fever or typhus, were considered as effects of the fever, or secondary diseases. We ought to consider as of phlogistic origin, the greater number of diseases, whether acute or chronic, such as typhus, yellow, and gastric fevers—consumption, marasmus, slow fevers, venereal, cutaneous, and glandular affections, and even many supposed to be simply convulsive disorders. Thus, in viewing the phlogistic process, always the same, and always arising from excess of stimulus, the influence of indirect debility, considered as the cause of so many diseases, is diminished, and the catalogue of those curable by stimulants, much reduced.

The new doctrine is at variance with the opinion of Brown, which derived the foundation of the disease, or the nature of the diathesis, from that of the causes preceding it. It is sufficient for the refutation of this position, to mention a great number of inflammations, such as angina, pleurisy, and rheumatism, which succeed the application of cold and moisture, debilitating powers. Chronic inflammations of the liver, proceeding from depressing passions, cured by rhubarb, aloes, and acetite of potash: puerperal peritonitis, believed to be asthenic by Brown, from the loss of blood, and long suffering preceding it, but which dissection, and

32 Bell's *Account of the Doctrine of Counterstimulus.*

The new doctrine has, at least as respects its leading principles, a firm support, in the most successful plan of cure in all ages, and in the practice of the most esteemed schools, whatever may have been the language they adopted. The remedies almost all directed to expel or correct, to sheath or render less pungent acrimonious matters, were counterstimulant. Those substances praised by the different chemical schools, were almost all drawn from that kingdom of nature, whence scarcely any stimulating article proceeds. Emetics, on whatever pretext given—purgatives so freely administered in all acute or chronic affections—bitters, deobstruents, emmenagogues, aperients, diuretics, were all counterstimulating remedies.

Empiricism itself, gives its support to the new doctrine. Thus, James' powder, the various aloetic and rhubarb pills, vermifuge preparations, mercurial compounds, are more or less endowed with a counterstimulant or antiphlogistic action.

In the class of counterstimulants, are ranged the acids, mineral and vegetable, almost all the metallic preparations, including those of mercury and iron: in the vegetable kingdom are, according to Professor Brera, who has instituted a number of experiments on the subject, the *Hyosciamus*, *Aconitum Napellus*, *Belladonna*, *Cicuta*, *Digitalis*, *Gratiola Officinalis*, *Phellandrium Aquaticum*, *Lauro-cerasus*, *Ipecacuanha*, *Squills*, &c.

Brera recommends, in the highest grades of the hypersthenic diathesis, the distilled water of the laurel cherry, which he has given to the extent of an hundred drops for a dose, every two hours.

"We have used the tartar-emetic," says Comàndoli, the Italian translator of Frank's *De Curandis Hominum Morbis*, "in the beginning of peripneumony, to the amount of four, six, eight, and ten grains, dissolved in eight or ten ounces of barley water, with an ounce of oxymel, according as the diathesis, or local inflammation, seemed more serious. Of this drink, half an ounce was taken every quarter of an hour, and if it produced no disorder of the stomach, as for

the most part happened, the quantity to be administered in the same way was increased, for the second time, two or three grains,—diminishing, at the same time, the intervals between the doses. Conformably to this plan, in a few cases, we have gone as far as *five scruples* in *fourteen hours*, without the patient having had either *vomiting* or *diarrhœa*.* More frequently, indeed, the quantity taken did not exceed a scruple or thirty grains. From the use of this remedy, we have observed, that the pulse was lessened in force, that the respiration became freer, that the patient was less restless and furious, and that he often complained of weakness, and sometimes demanded with eagerness a cordial. Occasionally, in a less violent form of disease, he said that he had a good appetite. If, however, after twenty to thirty grains had been taken, and in some patients a less quantity, (the same is applicable to the five scruples,) nausea appeared, we immediately diminished the dose by one-half, having observed as well in this as in other counterstimulants, that their effects last a long time: hence we must calculate their action, without at the same time entirely abandoning the use of them."

There is another state of the system which has excited much attention by the labours of Rubini, Fanzago, and Bondioli, and which, equally distinct from one of stimulus

* How are we to reconcile this practice with the experiments and deductions of Magendie on the effects of tartar emetic given to dogs, and injected into their veins. All those animals which took four, six, or eight grains of tartar emetic dissolved in water, and the œsophagus of which was tied to prevent vomiting, died in two or three hours from the time of the introduction of the salt into their stomachs. Those, on the contrary, which threw up the emetic, took a drachm of it, without, for the most part, experiencing any bad effects. When the dose was carried to half an ounce, they were observed to perish at the end of a few hours, or a few days, and at other times *this strong dose* was unproductive of any accident. He concludes by saying, that "this salt, given in a large dose, may produce very serious effects, and even death—that if in certain cases of tolerably frequent occurrence, men and animals swallow without inconvenience strong doses of tartar emetic, this is owing to the salt being thrown up entire in the first efforts of vomiting." Orfila, *Toxicologie Generale*, tom. i. p. 259.

We are not of the opinion of those who deny *in toto* the utility of experiments performed on animals, but think they ought not to have much weight when opposed to the experience of men of undoubted veracity and candour.

34 *Bell's Account of the Doctrine of Counterstimulus.*

or of counterstimulus, constitutes the diathesis of irritation. Under this head are ranged gastric fevers, colic, disorders from worms, hydrophobia, tetanus. It is taught by Professor Rubini, that irritating powers act on the excitability, not by augmenting or depressing the excitement, but by producing irregular and discordant movements of the living fibre. The consideration of this state is of the highest importance, and ought ever to be held in mind by the attentive practitioner, in treating the diseases of children, in whom we often see the most alarming symptoms supervening from the irritation of worms, or of unripe fruit, or indigestible matters of various kinds. Intermittents from gastric irritation are cited by many authors: Rubini has seen a tertian produced by eating unripe plums—Lotichius, from oysters—Baldinger, from pike—Joseph Frank, from mushrooms. Fevers of a similar nature, from worms, are mentioned by Paullini, Formius, and Panarolus. The want of success in the treatment of tetanus and hydrophobia is, on the above principle, more readily explained—as the system is then in such a state, as to be neither acted on efficiently by stimuli or counterstimuli, and we are left to try the effects of counterirritants, which will be efficacious in proportion not only to their local powers, but to the extent of their propagated action by sympathy, so as to interest as great a number of parts as possible, and induce an irritation superior in force to the morbid one. If, however, the irritating cause be suffered to act for any length of time, the diathesis of stimulus or of counterstimulus, more usually the former, will supervene and demand a treatment adapted to these states in other circumstances: still cannot we hope for a cure without the removal of the irritating agent?

In summing up the principles of the above doctrine we may say: 1st, Life is a state of perennial struggle, produced by the excitement of the animal solid moderated by the application of counterstimulating powers. 2dly, Those agents which directly prostrate excitability, or diminish the intensity of stimuli, will rank under the class of *counterstimulants* or *counterexcitants*. 3dly, When the excitement of

the living solid is equally restrained by counterstimulus, there results health, which may be defined that state of the living body, in which the action of stimulating powers is readily checked by contrary ones. 4thly, Such a state, however, always supposes the integrity of the solid parts constituting the organization, and the presence of powers as well stimuli as counterstimuli, in proper quantity and proportion. 5thly, If the organization of the parts be altered, or surpass the necessary measure of antagonization, diseases soon arise: in the first case organic or irritatives, in the second of too much excitement, curable by counterstimuli, or of defective excitement, curable by stimulating remedies.

Yet, while it is useful to bear in mind the two grand divisions of agents on the human frame, we must never lose sight of their very numerous modifications of actions, scarcely any two producing precisely the same effect. This very important fact has not been overlooked by the Italian schools, which recognize in many of the counterstimulants, an *elective* action. Thus belladonna acts more directly on the brain and the eye—digitalis on the heart and arteries—tartar emetic in a still more decided degree on the same order of parts—ipécacuanha on the viscera of the abdomen, and it is found particularly useful in peritonitis, puerperal fever, and dysentery, in doses of a few grains frequently repeated: valerian used in sthenic epilepsy appears to exert its action in preference on the brain. The nux vomica and Faba St. Ignatii act on the muscles: according to Hildebrand, the arnica has an elective action on the brain, by calming vertigo and delirium.

It were well if the exclusive pathologists, who make all diseases originate from a derangement in this or that viscus, would bear in mind these facts, and consent to see the elective action of noxious powers on particular organs, as well as they discern the same action of therapeutical agents.

Thus far the Italian writers. Let us now examine for a moment the general plausibility of the doctrine, and its prac-

tical application. The first thing that must strike us in it, is its forming the completion of the system of solidism, which only becomes clear and consistent in proportion as we adopt the new principles. Being desirous to increase the action of, or impart energy to, the living fibre, we administer stimulants and tonics—not with the view of their entering into the circulation and producing a chemical change on the fluids of the body—but that they may act immediately on the solids through the medium of the stomach, by sympathy, or any other term better adapted to express the fact. When we wish, on the contrary, to diminish the energy of the solids, we can imagine no other means than by an evacuation of fluids, to remove thereby the direct stimulus from irritation as well as distention—acknowledging, in fact, that we are unable to relieve without evacuation, and joining in the practice of the humouralists, though we try to mask it by a different theory. Emetics, purgatives, diuretics, and diaphoretics, are all exhibited on this principle, which reduces too often our pathological reasoning to a mere quibble and play upon words. The new doctrine, in admitting two opposite classes of agents and states of the system, simplifies our notions, and is supported by the general analogy in the laws of nature. The skilful mariner does not confide the safety of his vessel in a storm to the chance of the wind lessening in violence, but prudently takes in sail, and diminishes the quantum of surface on which it had to act. Distrusting, however, these comparisons, as too frequently fallacious, if we advance to the consideration of powers acting on the human frame, we shall still find much to justify the preceding views.

The influence of the passions, which, displayed alike to the scientific and the ignorant, is marked by such opposite phenomena and contrary states of the system, affords a striking illustration. Who that has ever had his warm hopes chilled by disappointment, and felt corroding care substituted for joy—or anxious timidity for noble confidence, but must have felt the direct diminution of mental vivacity and corporeal energy. Behold that being, appalled by sud-

den fear! colour flies from his cheeks—his skin shrinks—his pulsations become weaker and slower—muscular motion is palsied—his senses are obtuse, and the whole man is prostrated: he sinks down, powerless, inert, into a state of *counterstimulus*—fatal, if not soon relieved by agents of an opposite nature. Watch the slower ravages of grief in the sunken eye, the tremulous and softened voice, the wasted form, and feeble step, all announcing the direct and positive diminution of vital energy.

The effect of physical powers shows also the direct depression of the system. Darwin has proved by a number of ingenious experiments that the living fibre will, when long acting one way, fall into a *directly opposite condition*, not into indirect debility, or inability to continue its first action. In the dilatation of the pupil by belladonna, we see an immediate and powerful state of counterstimulus induced, without any previous excitation, and requiring the long continued application of the stimulus of light, or the administration of internal stimuli, to restore the eye to its former state.

The distilled water and oil of the *lauro-cerasus*, and the hydro-cyanic (prussic) acid, present other very remarkable examples of counterstimulant action. Two ounces of a mixture made of one dram of the oil of the laurel-cherry, and six pints of water, being given to a dog, the animal was so paralyzed as to be no longer irritable by any agent, and died in half a minute.* In his *Toxicologie Generale*, tom. ii., Orfila gives the cases of different individuals, poisoned by the distilled water of the above shrub—in the majority of whom death supervened without any vomiting or convulsions. The effects of the pure hydro-cyanic acid, as prepared by Gay Lussac, are, according to the experiments of Magendie, most sudden and surprising. The latter gentleman dipped a small tube of glass into a phial containing a few drops of pure hydro-cyanic acid, and immediately introduced it into the mouth of a dog: hardly had the tube touched his

* Mead.

38 Bell's Account of the Doctrine of Counterstimulus.

tongue, when the animal made two or three great and hurried inspirations, and fell down dead. It was impossible to find, in his muscular organs, any traces of irritability. A drop of the hydro-cyanic acid was applied to the eye of a dog, and similar and equally fatal effects were observable. Diluted in four drops of alcohol, one drop of the acid was injected into the jugular vein of a dog: the animal died immediately, as if he had been shot by a bullet, or struck by lightning.*

Orfila, in summing up the effects of the hydro-cyanic acid, which, he supposes, exerts an action similar to that of the distilled water and oil of the laurel-cherry, says, that it destroys irritability, and that it does not produce any inflammatory lesion capable of being seen after death.

The experiments on the Strychnine and Brucine, new alkalies from the *Strychnos Nux Vomica* and *Strychnos Ignatia*, and the *Brucœa Antidysenterica*, are not quite so conclusive. Magendie found that these substances exerted a strong action on the spinal marrow, producing tetanus. Orfila concludes that the *Strychnos*, as also the *Upas (tienté)*, have very slight effects on the mucous surfaces, and none of them produce inflammation of the tissue to which they are applied.

Mr. Brodie thinks that the *Upas (antiar)* acts on the heart, which it renders *insensible* to the stimulus of the blood.

If from the physiological, we proceed to the pathological state, we shall find, that the idea of the directly debilitating effects of some medicines, is not confined exclusively to the Italian physicians. In his first Dissertation on Fever, Dr. Fordyce, speaking of the operation of ipecacuanha and tartarized antimony, in bringing about a crisis, says, "When a large dose of these medicines can be borne upon the stomach, without occasioning nausea, they are more efficacious in rendering the paroxysm shorter, and converting the fever into a simple one, than when the stomach will

* Magendie, *Annales de Chimie et de Physique*.

bear but a small quantity, without producing nausea. In this case, indeed, they rarely have any effect in carrying off the disease." He had previously advanced the same opinion in "Some Observations upon the Combination of Medicines," read September, 1799, before a society for the improvement of medical and chirurgical knowledge.

The late Professor Barton, in his edition of Cullen's *Materia Medica*, remarks of arsenic, "It often happens that in proportion to the debility induced by the medicine, the chances of recovery from intermittents are increased." Again: "Arsenic is not equally adapted to intermittents of all kinds: it will often fail in the intermittents with weak and low arterial action. It succeeds best in those of an opposite kind." His ideas of the operation of *Saccharum Saturni* in hæmorrhages, are of nearly a similar nature. How can we, indeed, with any degree of consistency, give this medicine as an astringent, at the very same moment that we use the lancet? Our practice is consistent, though our theories must make it seem empirical in this instance. Examining with impartiality the effects of lead applied to the human frame, whether in the form of vapour, among those working in it, or in a saline state given to those suffering under hæmorrhages and dysentery, we shall be forced to acknowledge, that it is much more entitled to the appellation of counterstimulant, than to that of tonic or astringent.

But, rejoins the medical inquirer, though we may concede this point, we cannot yield our assent to the new arrangement of iron, and abandon our opinions derived from the experience of ages, to the speculations of the day. Ignorant of the arguments or facts by which the advocates of the new doctrine support their classification, we must be satisfied with some general considerations on the subject, and the adducing of a solitary example in favour of their opinion. The chalybeates, which have been regarded as one of our best, perhaps the very best of tonics, have almost invariably been exhibited in what may be termed equivocal states of the system—or, in other words, where there is

some feeling of languor and debility, accompanied by febrile excitement—as in the convalescence from fever—in chlorosis and fluor albus—and various nervous and spasmodic affections, so called. In the first case, which might as well be termed the convalescent state of fever, iron is said to be a *safe* tonic, and admissible when vegetable bitters and the bark would be highly improper, removing the state of languor and debility, without increasing, on the contrary, rather diminishing, the small remains of fever. The use of vegetable acids, laxatives, and the cold or tepid bath,* have similar effects, and yet we cannot readily put them on the same scale with tonics. Chalybeates are extolled by Sydenham in the highest terms in chlorosis; while Hamilton and others have found purgatives equally beneficial. As to fluor albus, it is supposed by many, with a great deal of reason, to depend upon a slow phlogosis of the internal membrane of the uterus, and according to some, of the vagina. Morgagni compares it to a coryza: Ballonius calls it a catarrh of the uterus—and Lelius a distillation proceeding from a sort of rheumatism of the same organ.

* Franceschi of Lucca, in his valuable work on baths, presents us with an arrangement of them conformably to the new system. He considers water, whether generally or topically applied, if below the animal temperature, as a counterstimulant: when exceeding that standard, it is a stimulant. For the train of reasoning by which he supports his opinion, we must refer the reader to his work, which, in a small compass, contains much interesting information to the heads of families and invalids, as well as to the physician.

The late Professor Dorsey, whose untimely loss we all have reason to deplore, used to advocate the stimulating action of cold in his lectures on the *Materia Medica*. He reasoned thus: Cold produces a contraction of the capillary vessels, and constriction of the skin: now increase of contractibility is the result of stimulating action—therefore cold is a stimulus. The same reasoning is applicable to fear, which produces very similar phenomena, yet few will call it a stimulus: nay, the same train of symptoms precedes the final extinction of life—we have paleness and shrinking of the skin, *collapse* of the capillaries, stagnation of blood in the great vessels, and in the heart. We reason too much by links in considering the effects of the cold bath—beginning at the surface, and only arriving at the heart and important viscera by sympathetic movements—whereas every thing justifies the belief that there is an instantaneous diminution of contractile power and vital energy in the whole sanguiferous system—greatest in the larger vessels, as they have originally less of it, and lose it more readily than the smaller ones.

In the example above alluded to, the sulphate of iron was given in combination with the carbonate for tænia, gradually increasing the dose, until eighty grains of the former, and one drachm of the latter were taken at once. Previous to this, half an ounce of the carbonate had been administered alone for one dose. During this treatment, the patient on whom the medicine produced no nausea, or increased intestinal discharge, and who had no theory to support, asked more than once, "Doctor, do you give me this medicine to weaken me, for I feel quite faint?" The pulse, which at the beginning was hard and rather frequent, now became fuller and softer. Effects, very similar, follow the use of the sulphate of copper in the same complaint, which was given to the extent of five grains, with twenty-five drops of laudanum, the two last times. This medicine, by the way, was very effectual in destroying the worm, which, on administering some castor oil, was discharged in large quantities.

Nearly the same remarks are as applicable to the mineral acids as to iron, though their counterstimulating operation seems better determined. A few drops of the diluted sulphuric acid have produced such unpleasant feelings of debility and exhaustion as to require a glass of spirits and water to remove them. That this same medicine may be useful in checking night-sweats cannot be denied, where, as is frequently the case, they depend on some periodical excitement or irritation.

Mercury, according to our usual reasoning, is a stimulant: 1st. By virtue of its purgative or emetic operation; and secondly, in consequence of the fever which it excites, when carried to the point of salivation. But any person, the least conversant with the treatment of diseases, must have had occasion to witness the soothing effects of calomel in cases of irritability of the stomach, where laudanum, the effervescent draughts and aromatic tinctures, have been all successively rejected. In inflammation of this viscus, and in bilious colic, the same good effects are observable: diminished activity of the affected part, equability of the

pulse, and even tranquil sleep, ensue on the administration of calomel pills, and long before they act as purgatives. We see, in fine, the same favourable results as from the use of the lancet. Let the fretful hypochondriac, with his furred tongue and parched mouth, flying pains in the side, and soreness in the region of the stomach, take six, or eight grains of the blue pill on retiring to bed, and he who would have had a perturbed sleep with frightful dreams, now spends the night in a happy state of oblivion. It is only on the following day that any laxative effect ensues—and in some, the medicine has no perceptible operation of this kind. Vainly do we try to discover a stimulating power in these cases,—nor can we, on the old principle, account for the fear entertained by physicians of giving mercury in a diseased state of the liver, that is, where a disease of counterstimulus exists—or the well-founded aversion in those of the old school, to administering the same medicine in certain chronic diseases of the stomach, as dyspepsia, where this viscus is often in such an enfeebled state.

In cases of incipient phthisis pulmonalis, mercury has been found beneficial in common with small doses of tartre of antimony and potass, saline preparations, vegetable acids and small bleedings. In the more advanced stage, when the debility is great, the same medicine will accelerate the fatal termination of the disease. The practice of giving mercury in the phlegmasiæ and fevers of high action, is totally irreconcilable with a stimulating operation. But we are told it emulges the biliary ducts, and stimulates the liver and glandular system to increased secretion. Where the hepatic apparatus is “locked up,” the use of the lancet will be attended with effects similar to those attributed to mercury.

The consideration of this question, brings us to the peculiarity of the mineral under consideration, in salivating, and to the kind of fever which follows. It has been observed, that in cases of great febrile excitement, and where inflammation runs high, it is extremely difficult to induce ptyalism, and to accomplish this end we are obliged to have

recourse to the lancet and antimonials, to bring about a state of counterstimulus, which the mercury of itself cannot frequently accomplish. If we attentively watch the march of disease and the beginning of convalescence, in cases where mercury has been freely administered, we generally find between the cessation of the former and coming on of the latter, a period of repose, of exemption from pain and irritation, a state in short of counterstimulus, soon followed indeed, by a re-action which we denominate mercurial fever. But do we not observe the same phenomena succeed the use of the lancet, where the vital energy has been anywise great? In the one case, if we continue to bleed beyond what is required by the violence of the disease, or admitted by the constitution of the patient, debility of an alarming nature supervenes,—in the other, if the patient be much enfeebled and the powers of re-action weak, the mercury, continued to any extent, goes on debilitating, and finally prostrates the vital energies: or should pytalism be induced, the fever or re-action is ephemeral and the same train of alarming symptoms come on as before, which are only relieved by cordials and stimulants. Whatever may have been the speculative opinions of those who practice in warm climates, they are soon forced to confess, from the irresistible testimony of experience, that mercury is ill borne by weak habits—that it induces great debility in the digestive, nervous and muscular organs, by no means proportionate to the duration of the previous slight mercurial fever which is principally kept up by the irritation of sore gums.—Hence, in summing up, we find, in the first place, that mercury is thought best adapted to diseases of high action, in which it is given in conjunction with depleting and counterstimulant remedies: and secondly, that if we employ it to any considerable extent, it produces great and serious debility, and often an entire prostration of the powers of life, and that the most active cordials or stimulants are demanded to palliate or remove such effects.

These remarks are not made in the spirit of system, but with a sincere desire to investigate truth; and in treating of

44 Bell's Account of the Doctrine of Counterstimulus.

this, as of all other medicines, we ought ever to hold in mind the advice of the classic Celsus, "*Oportet itaque ubi aliquid non respondit, non tanti putare auctorem quanti ægrum et experiri aliud atque aliud.*" *

We have already glanced at the counterstimulating operation of purgative medicines as distinct from their power of producing evacuations, and it is only by a recurrence to this principle, that we can account for the alarming effects induced on many persons at the decline of a disease, when the system is verging to a state of counterstimulus, by the administration of a common dose of salts,—and which cannot be simply the consequence of the abstraction of fluid from the circulating medium, as venesection itself would not induce so great a degree of debility. On the other hand, in diseases of stimulus, as in cynanche trachealis, for example, every practitioner must have been struck with the great quantity of antimonial wine or tartarized antimony, which has been taken by small children, without occasioning any evacuation, either upwards or downwards—whereas, let the diathesis of stimulus cease, and the most alarming effects would ensue in the same subject, from even a fractional part of what was before taken with impunity. The same remark applies to the use of calomel and various other purgative medicines, which often cause no evacuation, till the lancet has been used,—proving that a certain state of counterstimulus, always precedes intestinal discharges.

It has been frequently remarked, that vermifuge medicines have allayed and removed the fever and irritation which were attributed to worms, without expelling any from the intestines. This, no doubt, may be accounted for, in many cases, from the circumstance of purgatives being at the same time administered, which carried off slime and sordes that acted as irritants—while, in many other instances, the effect is referable to the counterstimulating action of the greater number of this class of articles.

The observing practitioner must occasionally have met with great difficulty in reducing arterial action in diseases

* Lib. III. Cap. I.

of the chylopoetic viscera—more especially of the liver, where, it would seem, that in proportion as the patient is bled and purged, the vessels become more susceptible to the stimulus of the contained fluids, and the alimentary canal more and more irritated, producing what the school of Broussais would term *gastrite*. In these cases, the administration of tartarized antimony with the acetite of potass, has been attended with the happiest results, by allaying irritation, and diminishing the action of the heart and arteries: an effect not referable to any diaphoretic operation—for digitalis has occasionally the same beneficial tendency. The most rational explanation of such facts is, we think, found in acknowledging, that these medicines act immediately on the living solid, the increased power of which they diminish.

In typhus pneumonia, and in those pleurisies and glandular affections arising from the transition from a warm to a cold climate, the counterstimulant method will be found more safe, and more decidedly efficacious, than any other—steering, as it does, clear of the two extremes of bleeding and stimulation, by lessening the susceptibility of the living solid to the action of the increased momentum of the fluids, without producing alarming debility, or collapse of the vessels—and at the same time avoiding the increased and irregular movements which stimulus creates. Thus, when sailors arrive off our coast in the winter and spring seasons from China and India, it is not uncommon for them to be attacked with pleurisy, which is better relieved by saline medicines, tartarized antimony, and ipecacuanha, than by bleeding and blistering—enabling them sooner to return to their duty than they could have done after active depletion. In the case of a young man of a healthy robust frame, attacked with pleurisy, eight grains of tartar emetic were taken by him between eight o'clock in the morning and four in the afternoon, without producing either nausea or vomiting, though it diminished the hardness and frequency of the pulse, and soothed the pain. The next morning two more grains were taken in union with cream

of tartar, and no alvine discharge was induced till the following morning.

We shall conclude by expressing our ardent hopes, that the mind of the American practitioner may be more pointedly directed to the subject of Italian medicine. The great similarity of climate, between the southern and middle sections of our country, and Italy, the regular habits of close observation which mark her medical writers, and the liberal patronage extended to her schools, are all so many forcible appeals to our attention. It is not detracting from the fame of the Scotch universities, to assert from firm conviction, grounded on ample opportunities of comparison, that the American student will obtain more useful and practical knowledge of the histories and treatment of diseases in the medical schools of Bologna and Pisa, than in those of Edinburgh and Glasgow. The teachers in the latter institutions, may and do display learning and research: but those of the former, with no inferior acquisitions, will conduct us into the hospital, or direct our attention to the country around, and point out the great majority of diseases, similar in nature and progress to those we meet with at home,—from the yellow fever at Leghorn, to the intermittent and bilious remittent of the *Campagna di Roma*. Nor will they win our regard more by the solidity of their views, than by the engaging affability of their manners, whereby they rouse us to exertion in soothing our self-love, and rendering us enamoured with our pursuits.



ART. III. *Some Observations on the Propriety of explaining the Actions of the Animal Economy by the assistance of the Physical Sciences.* By JOHN D. GODMAN, M. D. Professor of Physiology in the Philadelphia Museum, and Lecturer on Anatomy, &c. Read before the Philadelphia Academy of Medicine.

NOTHING, perhaps, is more justly entitled to our admiration, than the universal agreement to be observed between

the various parts of the system of nature. In whatever aspect we contemplate the subject, we see such a continual subserviency of causes to the production of effects, which in like manner are the agents in succeeding operations, that we cannot avoid inferring, that the Mind which *designed* the whole, must have been omniscient. Nor is this more clearly developed in the design, than it is established by the execution—where we find that the perfection of the work consists in always being the result of causes that depend on some great first principles, and not on any particular and temporary exertion of power.

Thus, however extraordinary phenomena may appear at first view, we can most generally trace them to the agency of a few principles. These act with so much regularity and precision, in the cases with which we are best acquainted, that we recognize them wherever they occur, and predict their results with certainty and ease.

To show the existence of the same agreement in the human system, is the purpose of these observations. We desire to establish the position, that the animal economy exhibits the same harmony which is to be discovered in all the parts of the great system, and that in it nothing is effected, without the aid of the ordinary known laws of nature.

The difficulties of this undertaking do not arise so much from any obscurity enveloping the subject, as from the prejudices of those against whom we argue. From the extreme of credulity to the extreme of scepticism, is not an uncommon movement—and we find, that from allowing the functions of the animal economy to be performed entirely by the agency of the ordinary laws of matter, multitudes now as firmly deny their presence in any case.

This negation is founded on this ground: It is contended in the first place, that we cannot *demonstrate* the operation of these laws in many instances—and secondly, that we cannot imitate the results by their assistance out of the body.

Now, our belief in the existence of certain bodies and principles is established either from demonstration, or by a necessary inference. In the human body, we know there are

blood-vessels for conveying, and blood to be conveyed to the different parts. This we can demonstrate. Cut the vessels open, so as to draw off the blood, or compress them, so as to prevent its passage, and the parts are no longer nourished. Here we infer, of necessity, that the blood is the source of nutrition, although we cannot demonstrate it in the act of nourishing. Neither do we know of any other means by which the body can be supported.

In the same way, we cannot prove by demonstration that the bones are possessed of absorbent vessels. Yet we believe in their existence in bone, of *necessity*, as we observe the bones to be altered and removed, to a greater or less degree—and we are ignorant of any other way by which such a removal can be effected in the living, healthy system.

To apply this mode of reasoning to the case in point, is not difficult. The human body is composed of a variety of parts, each of which is, as far as they are known, exactly similar to certain substances, with which we are acquainted by previous investigation. Thus we have gelatin, albumen, fibrin, earth, alkalies, &c. To repair the waste of the system, we take into the stomach food, whence the materials for such repair is obtained. From the various actions exhibited in the sustentation of the animal machine, we have those phenomena exhibited, the aggregate of which are called life. The mode in which the processes are conducted, as digestion, assimilation, &c. are said to be by the governance of the laws of life. In these cases, it is demonstrable, that the materials taken into the body go to the nourishment of the system, and that they are disposed of according to the laws of life.

Here it must be carefully recollected, that the vital principle is only known to us by its effects, as all other things are, by their qualities. By the *laws* of life, must always be understood, the *rules* of *action*, according to which the operations of the system are effected. A rule of action, relates only to the *manner* in which the act is to be performed. It is not the act itself. Thus by expanding the chest, we

bring air into the lungs, while the impulse of the heart throws the blood into the vessels of the lungs. Certain changes are wrought, both in the air inspired, and in the blood of the lungs. The *law* of life here determines the *manner* in which the two substances are to be approximated. The law of life is not *air*, nor *blood*, neither is it the *changes* which have taken place.

It is to be shown that agents taken into the system are influenced, while in the system, by the ordinary qualities of matter, and this of absolute *necessity*.

All substances in nature, are endowed with properties, essential to their existence. The least variable of these, is that modification of power called chemical affinity. This is the power which unites particles of dissimilar character. As the particles of matter are all possessed of this affinity, so the chemical combinations effected, are owing to the individual affinities of each particle, of the one side, for the particles of dissimilar character, individually, on the other.*

To prevent particles from forming combinations, it is necessary that there should be present a power capable of counterbalancing the attractions, otherwise the union will take place. Where this counteraction does not extend so far as to prevent the action entirely, it modifies it in a ratio proportioned to its energy. In the human body the modifying cause is the vital principle, acting according to what are called the laws of life.

If, then, materials endowed with certain properties be required for the support of the system, we hold it equally true, that the changes effected in the system, are mainly owing to the inherent properties of the substances taken in. The law of life determines the mode or proportions, in which the materials are to be brought together, and though it has the power of modifying, yet it is not chemical affinity. The chyle is added to the venous blood of the left subclavian, and poured into the right side of the heart.

* Vide "Berthollet's Chemical Affinities."

The fluids, chyle, and venous blood, are extremely different in chemical character as well as in appearance. Thrown from the right auricle of the heart into the pulmonary vessels, we find many curious changes have taken place. The chyle has lost its white appearance, and the venous blood its dark hue. It likewise assumes a vermillion color. It has lost much carbon, and its chemical character has undergone marked alterations. Here, again, the *law* of life governs the manner of the process. The materials are not life. As materials, they must possess their distinctive attributes, or they do not exist. The law of life places them in a proper relation, and the laws of affinity combine them together. We do not, as we might, insist on the discoveries of the chemists as to the *peculiar* internal changes in these processes, but are contented with the establishment of the general principle.

In the animal economy, we will resort to the substance bone, for further support of the truth of our position. Bone owes its solidity to the earth lime, in combination with phosphoric acid. Lime is a compound substance formed by animal bodies. Its elements are not yet known. Phosphoric acid is a substance formed in like manner. The laws of life bring them together, and their characteristic affinities combine them firmly.

Nature, in all cases, works by means. She never employs more causes than are sufficient for her purpose. The laws of action belong to matter, fit them for her operations, where otherwise a perpetual interference would be required to prevent her structures from falling into ruins. A great error in reasoning on these subjects, springs from mistaking an arbitrary system, followed for convenience, and receiving it as the *principles* which are independent of any system. Thus some men associate a set of crucibles, or particular experiments, with the name Chemistry. Mention Natural Philosophy or Mechanics, and their ideas carry them no farther than an air-pump or a cart-wheel. Such men reject the agency of gravitation, electricity, affinity, &c. because some have failed to explain their modes

of operation. But the principles of our knowledge, are not of to-day. Grammar is coeval with language—the principles attempted to be developed by the different physical sciences, began with the universe. These principles are of necessity immutable in their operations. The systems of philosophers, unfortunately for us, are too often little better than records of error.

We have evidence of other laws operating in the body besides those of chemical affinity. By examining the various joints of the body, we shall see provisions of different kinds against various evils, which would otherwise result from the exertion of the laws of ordinary matter on parts composing our frames. In certain joints we find a substance interposed, which averts the evils that would arise from shocks caused by the sudden gravitation of one part of the body on the rest. This safety is owing to the elasticity of the interposed mass. Elasticity is one of the properties of ordinary matter—so is gravity. The laws of life place the materials, and regulate their nourishment. The object to be accomplished is the production of elasticity—which is a result of the law, and is not the law itself, nor is it life.

The body is transported from one place to another by living instruments formed according to the laws of life, and moving, and acting, so as to move the body according to the laws of matter. Thus, when the body is moved in various ways, the force and direction are according to the lever which is used. If we attempt to leap from the earth, the body is propelled from it by the well known principle of reaction. If we use the muscles of one side only at a time, the motion of the body is oblique—if we use both at once, we are moved forward according to the doctrine of the resolution of forces. We see in the socket of the eye the mechanical contrivance of the pulley, as in the case of the trochlearis—at the knee, as the quadriceps—the circumflexus palati, at the top of the throat, and the Peroneal muscles of the foot as they pass to their insertion, under the external angle.

These trite instances are mentioned, to show that the human body does not constitute an exception, and a solitary one, to the other parts of the universe. And as it conforms to the general rule in so many instances, it is possible that our imperfections are the causes of our inability to see its entire harmony. The fact is, that the abuse of terms is a great agent in keeping up the disagreement among medical philosophers. Certain of these terms have no precise meaning, as they are generally used. They serve, however, as a sort of refuge from every difficulty. Thus, with a great number, the term "secretion" is a citadel, to which they retreat, whenever they are set upon—especially when debating on the present subject. Yet this is a harmless little word—one that does not at all strike against the correctness of our sentiment, "that the agency of the laws of ordinary matter are by no means incompatible with the laws of life." Of course we do not insinuate that the same changes take place in the system, as out of it—but that the principles, under different modifications, are employed in it as effective instruments.

Let us now inquire into the meaning of the term "secretion." Its immediate derivation is from "secretum," the root of "secernere," *to separate*. When we say that any substance in the human body is a secretion, we mean that it is a separation from the alimentary mass or the nutritious fluids. Thus the chyle is secreted from the food—the blood from the chyle—milk, saliva, bile, &c. from the blood. In other words, all these substances existed before they were separated. Their elements are separated by appropriate instruments, governed by the laws of life—and their combinations are effected by their individual and immutable affinities. They did not combine before separation, because not presented under proper circumstances. As soon as freed from the modifying influence of the mass whence they were secreted or separated, they combined.

Thus it may be stated, that animal temperature is not the

effect of chemical combination,* and that it is the result of "secretion." We have no objection to the latter conclusion. In saying that it is a secretion, its previous existence is acknowledged, either in the body itself, or in the alimentary mass. Secretion, or separation from the situation it before occupied, must be owing to some change in the mass that contained it. The laws of life may determine the proportions—but it is alone owing to the laws of affinity that it becomes evident to our senses.

It may be remarked, that there are many cases of morbid action, where there is most positive evidence of the operation of chemical affinities. If we take the case of diabetes mellitus, we shall find that a very unusual quantity of saccharine matter is formed. Now, we cannot suppose this sugar to be formed of any thing but its own elements, however they may have been brought together. Nor can they be held together as sugar by any thing but the affinities of their individual particles each for each. We may take another case, dropsy, for instance, where the quantity of water thrown off by the action of certain medicines greatly exceeds the quantity taken in. The water may be called a "secretion." It is so, since it is separated from the fluids of the system, and from the aliments taken in. Yet, however this may be, it can only exist as water by the aid of the elementary affinities of its particles.

Ever since medicine was cultivated as a science, it has suffered much from prejudiced and contracted views of its character. By many it has been regarded as a conjectural science entirely, or it has been esteemed one which can only be advanced by observation or experience.

To say nothing of incorrect observation or false experience, we may ask such persons, what is the aim of observation and experience? Is it not to make such a collection of facts as will enable the physician to generalize with safety? If the science of medicine consisted of nothing but insulated facts, how would it ever be taught or practised? Would

* See Dr. Harlan's paper in the last number of this Journal.

it not be a mass of ill digested materials, almost entirely useless from its confusion?

One great error has been to separate the parts of the study of medicine from each other: to consider the whole as in like manner separated from all other sciences: to look on the actions of the human system as mysteries, and to consider all attempts made for their analysis as nugatory. Thus anatomy is separated from physiology, pathology, and even surgery. One might almost say, that it is separated from itself, as it is now fashionable to study it in fragments or tatters, rather than as a great or connected whole. Physiology is severed from other sciences. Natural philosophy and chemistry must not be thought of. Because some have erred in their deductions, the whole round of principles are to be rejected. What gain we by this? instead of explanations, a mystical jargon of "laws of life," "secretion," "vital energy," and "vital principle"—words which, when used according to their real value, are of excellent service. As frequently employed, however, they are worse than useless, as they shut out the light.

Those who are enemies to the application of reasoning to our science, are generally mistaken in their estimate of observation. They forget that the mere observer and recorder of experiments, is to the true physician, or medical philosopher, what the quarrier is to the architect. The one gathers the materials with which the other builds. But for the quarrier, the fair proportions of the Parthenon, or the sublime extent of the Coliseum, had still been imprisoned in the rock: and without the architect, what an unsightly mass of rubbish would the labours of the former have left behind. It is thus with the mere observer in medicine. He is a most useful, though an humble agent. He collects materials assiduously: the philosopher examines his stock, selects the valuable, rejects the superfluous, and constructs those useful systems, which, in proportion to their adherence to correct principles, are the lights and guides of our profession. How happy it is for the science when the two cha-

racters are united in one mind: where experiment is the handmaid to reason, and philosophy guides the steps of observation.

ART. IV. *Historical and Critical Observations on Syphilis.* By
A. J. L. JOURDAN, M. D. Translated from the French, by
R. LA ROCHE, M. D.—(Continued from No. 4.)

CHAPTER III.

IT would appear only necessary to possess the art of judging of controversies arising among men, in order to doubt the American origin of Syphilis. Indeed, we feel little disposed to range ourselves among the defenders of this opinion, when we compare their peremptory and decisive manner, and the slight regard they seem to pay to their adversaries, with the modesty, prudent scepticism, calmness and courtesy, which these last have constantly observed, in their replies and objections. The tone of invective can never grace the language of truth, deriving, as it does, its greatest ornament from simplicity. "Tu prends ton foudre," said Ménippe to Jupiter, "tu as donc tort." History and chronology unite, as we have already seen, to prove the impossibility of this origin, when they are both examined, conformably to the rules of a just criticism—and not with the sole intention of drawing from them, conclusions applicable to an imaginary, or already preconceived system.

We have, however, omitted one argument, which seems of quite sufficient weight and importance to merit a particular attention. Even did we admit, that syphilis had appeared in Europe at such a period, as to warrant us in the belief that it had been carried thither by the companions of Christopher Columbus, and moreover, that it existed in the West Indies, and on the continent of America, at their discovery, which, however, is shown to be void of truth—it would still remain to be proved, that the cutaneous disease then prevalent among the Indians, and which was totally

unknown to the Spaniards, resembled in all respects syphilis. The little inconvenience, indeed, it caused the Indians and Europeans, as is mentioned by Lopez Gomara—its peculiar aspect, indicative of a sort of analogy existing between it and the yaws—conspire to prevent us from believing, not merely in an absolute identity, but even in the most distant resemblance in the two former affections. That the Spaniards received it in their intercourse with the women of that country, (which, perhaps, was not the only mode of communication, since it is a fact, that climate, air, and aliments, have a very great influence in the production and propagation of cutaneous affections,) should we in the smallest degree be astonished, when it is so well ascertained, that contagious diseases of the skin, are especially so by contact, and which is never more intimate than during the venereal act.—The truly hideous and dreadful picture of the syphilis of the 14th and 15th centuries, as drawn by the historians and physicians of the times, does not, moreover, permit us to imagine, that the companions of C. Columbus, had they really been affected with it, could have concealed from their countrymen the remains of such a disease, no doubt aggravated by their long voyage.—Neither can we suppose, on account of the wretched condition of their health, that they, on their return, could have committed such excesses, as to spread the disease—and equally improbable is it, that they, or any Spaniard so extensively affected, had sufficient remaining strength, courage, and energy, to serve in the army of Gonzalvo of Cordova, as mentioned by Oviedo.

Even the prejudiced Girtanner himself, felt the force of these arguments,—for in his notice of a work of the learned Heusler, he confesses, that Christopher Columbus, in the narrative of his voyage, written by his son, cannot be placed among the defenders of the American origin of syphilis. Now, how can we conceive that Ferdinand Columbus, who wrote the work from the papers of his father, could have omitted to mention an event so important, and without doubt, no less interesting to so philanthropic a mind as that of Columbus, than the discovery of the inexhaustible mines

of gold and silver. Girtanner accordingly adds,—“ Now that I look on the subject, with more impartiality, I perceive that many objections, difficult to solve, might be raised against the American origin of syphilis.” This concession comes almost out of place, and to discover it, it is absolutely necessary to read the book entirely through, with attention; since we are far from suspecting its existence, from the dogmatical and decisive tone which the author assumes in his historical romance on syphilis. It is, in fact, a mere stratagem employed by Girtanner, to reconcile his opinion with what was extorted from him by truth. We lay stress on this circumstance, however insignificant it may seem, when examined by itself—first, because Girtanner, being the last defender of the American origin, it may be advanced, among many other arguments against this last opinion, that its most able supporter continued to retain it, solely from self-love—and 2ly, because it gives a just idea of the character of the German writer. To excess, jealous of reputation, and possessing all that was necessary for acquiring it,—a liberal education, long experience acquired in numerous voyages,—a profound erudition, an agreeable style, an easy elocution, and the facility of access to one of the richest libraries of Europe; he thought every means good, that would conduct him to his ends. Taking advantage of the slightest circumstances, he would exercise his fertile pen on subjects attracting public attention. This caused all his works to create great sensation, especially that on the *Diseases of Children*, which met with a much more flattering reception, than, from its real merits, it deserved. What value can we attach to the sentiments of a man, so little scrupulous, as to attempt to appropriate to himself, the system of Brown, which he saw was spreading very slowly, though the Scotch physician had published it several years before—and sufficiently bold to maintain to all Europe, that he himself was its author, and that his new system had found numerous advocates, even in the University of Edinburgh? His judgments are always influenced by vanity or selfishness. As an example, an author, the most

insignificant, receives his praise, merely because he depreciates corrosive sublimate, an article for which he had the greatest antipathy ! We should ever beware of those ardent men, those splenetic censors, who only see objects through the medium of their prepossessions and personal interests.

But if it be proved that syphilis was not derived from America, whence did it take its origin ? Is it a new disease ? or did it exist before the end of the 15th century ? and was it even known in remote antiquity ?

The principal argument made use of, to prove its modern origin, and one that has appeared of the greatest consequence, is derived from the multiplicity of new names given to this malady, when it first appeared in Europe. The physicians indeed, not only applied to it no particular or proper name, but even permitted the community at large to designate it—or rather, they adopted those appellations which vulgar usage had rendered almost universal—such as, Neapolitan disease, French disease, or Spanish disease.* But all these new names no more prove the novelty of syphilis, than that of the fever of Hungary, the sweat, fever of Huxham, glandular disease of Barbadoes, colica pictorum, colica of Spain, Russian fever, influenza, croup, and many others, demonstrate that the diseases to which they are applied, were unknown anterior to their employment. All we can reasonably infer is, that they were invented to designate modifications, produced on already known diseases, by various circumstances—giving to these an unusual appearance, which imposed on the vulgar, and even led into

(*) Fraecastor was the first to make use of the word Syphilis to denote this disease. The shepherd Syphilus, says he, having destroyed the altars of the Sun, for the purpose of erecting some in honour of the king Alcithous his master, was punished by the god, who inflicted on him this horrid disease.

——— Et a primo traxit cognomina morbus,
Syphilidemque ab eo labem dixere coloni.

From this appears the futility of searching for the etymology of a word forged in the imagination of a poet. It is however, said, that the word is derived from *εὐς* *porcus*. and *φιλία* *amor*. *amor* *porcinus*. According to Sauvages, it comes from *εὐν* *with*, and *φιλω* *I love*,—we love each other. Both these derivations, but especially the second, are most absurd.

error a vast number of practitioners. Though leprosy was certainly known many thousand years prior to the discovery of Barbadoes, Hendy, Rollo, and Hillary, were the first to describe clearly that form of it, to which the inhabitants of that island are exposed. The low nervous fever, had been observed long before Huxham; but this practitioner having described it better than his predecessors, it retained his name. At the present time, when the spirit of analysis predominates in medicine, we are more averse to these arbitrary titles which have so powerfully contributed to the introduction of confusion into the science.

Leoniceo, possessing too correct a mind to believe the French disease absolutely new, and who on most occasions reasons with a justness and precision, astonishing for the times in which he lived, makes on this subject, a remark full of sagacity, and well worthy of attention. It is, that the want of a proper name, often causes a thing already known to be forgotten,—and that a new substituted for an old one, frequently destroys, both the knowledge of this last, and of the thing itself.—“An extraordinary disease,” he remarks, “spread in Italy and in many other countries. The physicians hesitated as to the proper name for it, and as to the class into which it should be placed. But when I reflect that men are all organized alike; all born under the same heaven; all under the influence of the same circumstances;—I am disposed to think, that they have always been subject to the same diseases, and therefore cannot imagine it possible, that the malady which broke out so suddenly among us, was not known to our predecessors.”

The novelty of these names is not, therefore, so conclusive an argument in favor of the modern date of syphilis, as was thought by Astruc, Girtanner, and even the great Haller.* We are, however, far from pretending to say,

(*) It is rather astonishing, that the defenders of the American origin, who attach such importance to this argument, should not have found, that if it was really of any weight, it would rather militate against their own opinion: for if it had been generally believed in the 15th, and 16th centuries, that the disease was brought from America, one at least, among the writers who describe it, would

that this disease is ancient. On the contrary we believe it so, only in a certain sense. With this in view, we think it right, to make a distinction that becomes necessary, if we wish to elucidate a subject, still enveloped in so much obscurity—and with respect to which, the mind is at times in a perplexing state of suspense.

In the question generally put ; “Did syphilis appear for the first time, towards the end of the fifteenth century ?” the terms are not sufficiently explicit, since, as preliminary matter, it is necessary to explain what is meant by syphilis. Now this, which has been neglected by all the writers, is the only way of duly appreciating, judging, and reconciling the different opinions successively advanced on the subject. By the term syphilis is therefore to be understood : 1st, a general affection of the system, which presents itself under a most frightful aspect, with many particular modifications,

have denominated it the American disease, whereas, we find this not to be the case. John Louis Vives, it is true, calls it *lues Indica*, in a sermon entitled *Concia de Sudore Christi*. But Vives was from Valencia in Spain, and his sermon appeared at Brugæ in 1529, four years after the publication of the abridged History of America by Oviedo ; at which time, this book, which may be considered the fountain head of the opinion so warmly defended by Astruc and Girtanner, had already made in Spain, all the impression wished for by the author. Oviedo was, however, far from having impressed his opinion on all Spanish minds,—for Andrew Alcazar of Guadalaxara, and professor at Salamanca, published a work in 1575, (*Chirurgia libri sex in fol. Salmantica*) in which he endeavours to prove from Pliny, Avicenna, and Hippocrates, that syphilis was already known to the ancients. In 1529, a Spanish priest of the name of Francis Delgado, born near the city of Cordova, wrote a work on guaiacum, the salutary effects of which he had himself experienced. By him we are informed, that this wood was first brought to Spain in 1508. He further informs us, and this is far more important to our subject, that *several Spaniards already affected with syphilis*, having embarked for St. Domingo, were there cured by making use of the decoction of Guaiacum,—“which,” as he further adds, “had been employed for a long time in that island, as a cure for an analogous disease.” Astruc, whom this passage vexes, exclaims, “Delgado must surely not have known, that syphilis had been brought to Spain from America.” Is this the proper way to write history ? Delgado did not believe in the romance of Oviedo, or perhaps had never read it : but he was well acquainted with all the details of the expedition of Columbus, which was an event too extraordinary in its nature not to excite general attention.—Our minuteness will perhaps appear fatiguing,—but in our minds, it is necessary not to neglect the aid of dialectic, when we endeavour to establish truths which are presented to us by History.

assuming a real epidemical character. In this sense, the word designates the disease which broke out towards the end of the 15th century. 2d, It may serve to express morbid symptoms arising from an intercourse with a disordered person, communicated in the same way to other individuals, and having with each other a more or less intimate connexion.

Now, if we use the word syphilis in this last sense, it can be incontestably proved, that, from the remotest antiquity, the diseases which it designates, were known—and that all the symptoms now classed under the general epithet of venereal, have been noticed. Of this, we shall be readily convinced, if we take a general survey of these last, with a close attention to history.

An irritation in the mucous membrane of the genital organs, causes, in many cases, a sort of erysipelas, an inflammation, characterised by great dryness, redness, itching, and burning heat. This disease, which was ridiculously denominated *dry gonorrhœa*, by some moderns, and especially Astruc—is much more frequently observed in women than in men, and was known long before the 15th century. At that period, two species of the disease were recognized; the first, appearing on the glans penis, or at the orifice of the female organs; the second, in the interior of the urethra. As the origin of these was supposed different—the one being attributed to external, and the other to internal causes—the first, under the name of *Arsure*, or scald, (*ardor, calefactio, incendium*) was abandoned exclusively to surgery; whilst the second, denominated *ardor urinæ*, appertained to medicine properly speaking.

Guy de Chauliac speaks often of scalds, which he thinks proceed from a deposition of matters (*ſœditas sordities*) around the glans.* To prevent any false interpretation that might be applied to this remarkable passage, Peter Argelata says, that pustules arise on the penis *ex materiâ venemosâ quæ retinetur et remanet inter præputium et pellem*

* *Cyrgurgia*.—tr. iv. doct. ii. c. 7. tr. vi. doct. ii. c. 7.

cutis ex actione viri cum fœdâ muliere."* But Guy de Chauliac is by no means less explicit than Argelata, for he informs us, that what was called *fœditas virgæ*, arose *ex conversatione cum fœdâ muliere*—and we shall, in the next chapter, explain the meaning attached to these words *fœditas mulierum*, by the physicians and surgeons of the middle ages. In the 13th century, Lanfranc, William Salicet,† and others, spoke of the same disease, in terms which prove how far they considered it worthy of attention. Becket has collected many passages from manuscripts of the 14th and 15th centuries, which make mention of it.‡ What proves this disease to have been considered of a serious and formidable nature is, that the police was compelled to adopt measures to diminish its propagation, and to inflict severe penalties on those who did not conform to them. This is the object of the old regulations for the *houses of pleasure* of London, published in 1162, and 1430; and of which Becket has given a copy in the Philosophical Transactions. Now, we know, that from the reign of Charlemagne, similar establishments and regulations existed in most of the large cities of Europe. Medical, as well as historical writers, make mention of diseases caught in those places termed *clapiers*. According to Doglioni,§ the prostitutes of Venice communicated a particular disease, called in Italian *Vermocane*: and antecedently, Jane, countess of Provence, and queen of the two Sicilies, who became celebrated for her amorous adventures, established in the city of Avig-

* Chirurgiæ libri vi. lib. ii. tr. 30. c. 3.

† Chirurgia, l. i. c. 48.

‡ Astruc and Girtanner, who are rather vexed at these authorities, first doubt the truth of Becket's reports, merely, because he quotes manuscripts they have not been able to see. They maintain, that supposing these true, there is every reason to believe, that the disease in question was only a symptom of leprosy. But this assertion is false in the extreme. No mention is made of this scald, in those long and tedious instructions that were destined to indicate the distinctive signs of leprosy; and we cannot suppose for a moment, that one, so striking, would have been omitted; whilst a number of less evident, and some very equivocal symptoms, were examined with the most minute attention.

§ Così notabile di Venezia in 12. Venezia, 1675. p. 23.

non in 1347, a house of prostitutes, with an ordinance, that compelled them to submit every Saturday to an examination, for the purpose of ascertaining whether they had contracted any lewd disease, (*mal de Paillardise*.) The authors who have merely written on the *French disease*, speak not, or at least very little, of arsures. But those who treat of surgical complaints, in general, describe it as being often a serious affection, resulting from intercourse with females; and always discuss it separately. John de Vigo, for instance, makes mention of it, in the second book of his work, and only describes the French disease in the fifth.*

As to the ardor urinæ, which is so minutely described by Valescus of Tarento,† I. Tornamira,‡ Mark Gatinara,§ John Gradi,|| Concoregio,¶ Magninus,** and other physicians, which generally precedes the appearance of the Blennorrhagia, and differs only from the *arsure* in its seat.—

* It is rather singular, that the French, who gave gratuitously their name to the epidemical disease that ravaged Italy in the 15th century, and among whom it appeared very early; had not, for a long time, any writer on the subject. It really did not seem to occupy their attention, but when it became universally believed, that it proceeded from the venereal act, then their national genius exercised its natural gaiety, in the composition of ballads and allegories,—such as the ballad of John Droyn of Amiens, published in 1512; and the allegory of John Le Maire, which appeared in 1520,—for we cannot count the Ordinance of the Parliament of Paris, dated the 6th of March, 1497; nor the translations of Ulric de Hutton by Cheradame; and of John de Vigo, by Godin. We shall endeavour to show, in our next chapter, that long before this time, modern poets made mention of venereal affections. At the time now in question, a specific venereal disease was admitted. This opinion had passed from the medical world into all classes of society, and was, consequently, seized by the satirists.—But they since, make no mention of any particular venereal symptom; but only of the general affection, the existence of which was merely suspected; and of the sad results of the ridiculous mode of treatment employed. The first French author who has written on syphilis, is James de Béthencourt, whose work appeared at Paris, in 1527, under the extraordinary title of *Nova pœnitentialis Quadragesima, necnon Purgatorium in Morbum Gallicum, sive Venereum*.

† Philon. l. v. c. 24.

‡ Clarificatorium super nono Almansoris. p. 83.

§ De curis ægritud. super nono Almansoris Lugd. 1538.

|| Consilia. in fol. Venetiis,—1521.

¶ Flos. flor. Medic. tr. III. c. 24.

** Regimen sanitatis, p. iv. c. i.

It was, for the most part, attributed to an affection of the kidneys and other urinary organs. It was sometimes thought to depend on chloric and acrid matter, which descended from all parts of the body, though especially from the liver: and by others, it was considered as resulting, in some cases, from an excess in the pleasures of love—which will really produce it in many persons, at least for a short time. The too frequent passage of the semen, said Avicenna, carries away the humours destined to lubricate the urethra.* Erroneous as this explanation undoubtedly is, it indicates at least, the knowledge of a cause, which, though very frequently exciting the blennorrhagic discharge, is, at the present time, too much overlooked.†

According to Girtanner, blennorrhagia, which frequently follows ardor urinæ, did not appear previous to the year 1550. But we cannot hesitate to place it among the most ancient diseases. It is described with too much precision in the Leviticus,‡ to be mistaken; and the system of prevention prescribed by the Jewish legislator, sufficiently proves, that among the people of Israel, it was very contagious. It is clearly pointed out, by the Arabs Ali-Abbas,§ Avicenna,||

* L. iii. fen. xix. tr. 2 c. 3.

† John Ardern, surgeon, of the 14th century, as quoted by Becket, advises only injections of milk for the ardor urinæ. Astruc from this concludes, that a disease, for which such mild and simple remedies were employed, could not be the precursor of blennorrhagia—and he maintains also, that this last was a true gonorrhœa, or discharge of semen. Independently of the correctness of the treatment proposed by Ardern, in certain cases and stages of the disease, (from which we must not, however, conclude any thing favourable of the physicians of the middle ages, as it would be conceding to them talents they did not possess; though they were far from being so ignorant as is generally believed,) it is well to observe, that on account of the insurmountable barrier which, at that time, was raised between medicine and surgery, surgeons spoke slightly of the ardor urinæ, which was not supposed to belong to their province, and only entered at large on the cure of the *arsures*. How could Astruc so far contradict himself, as to say, that the *arsures* was, without doubt, a symptom of that most formidable disease lepra; whilst on the other hand, he maintains that the ardor urinæ was an insignificant affection.—But the defence of a bad cause leads to many inconsistencies.

‡ Levit. 15. v. 2—23.

§ Liber totius med. c. ix. 38. p. 119. b.

|| Can. lib. iii. fen. xx. tr. 11. c. 22. p. 708.

Avenzoar,* and Albucasis.† Constantine the African,‡ Gariopontus,§ and Rogers,|| also make mention of it. In the celebrated collection of satires attributed to Cælius Secundus Curio, we find an account of a disease called *Gomorre*, which was then widely spread in the city of Rome. This term, derived, according to Beroald, from the old word gonorrhœa, to which, owing to a natural confusion of ideas, so common in all languages, two different meanings were attached, signified morally a vice arising from depraved habits—and physically, a disease of the genital organs. It is subsequently found in all the works published in the course of the fifteenth century; which proves that discharges from the penis and the vagina were already known, long anterior to the appearance of the epidemical syphilis.

It often happens, that, from imprudent conduct, and improper diet or treatment, the irritation primarily seated in the urethra is thrown on the testicles; first tumefying the epididymis, next is propagated to the tunica albuginea of the gland; enlarges this latter sometimes to an extraordinary degree, and thus produces the disease called formerly *hernia humoralis*, to distinguish it from hydrocele, which received the name of *hernia aquosa*.¶ This affection is not

* Geminum de Med. Facult. l. 11. tract. iv. c. iii. f. 83. a.

† Liber theor. neonon pract. tr. xxi. c. iv. f. 94.

‡ Oper. 1. v. xxi. p. 120.

§ Ad totius corp. ægrid. liber, l. iii. 67. p. 76. b.

|| Chirurgia, tr. i. c. 56. f. 220. a.

¶ Until lately, it was almost universally believed, that the swelling of the testicle was produced by the blennorrhagic discharge, which, abandoning its primitive seat in the urethra, is thrown on that gland. It is with sufficient reason that Girtanner condemns this humoral and mechanical theory; for how could the matter pass from the lacunæ of Morgagni to the testis, no communicating vessels existing between these parts? He supposes the accident to result from a sympathetic inflammation excited by that of the urethra, which last increases gradually, until it has arrived to such a degree of intensity, that the discharge stops, owing to the obliteration of the extremities of the vessels destined to carry blood to the mucous follicles. This theory, however, cannot be admitted, for it is a fact the most incontestable, that with the appearance of the swelling of the testicle, occasioned by the sympathetic translation of the morbid irritation, all inflammatory symptoms in the urethra cease. Girtanner betrays here, as every

omitted in any of the chirurgical works of the middle ages—though at that time, and long before, writers were in the habit of devoting a separate chapter to the diseases of the testicles, and it was long before this custom was abandoned. Nevertheless, we find it well described by Guy de Chauliac,* Argelata,† William Salicet,‡ and others. Even during the course of the epidemical syphilis of the fifteenth and sixteenth centuries, we have it minutely noticed by Benedetti,§ and John de Vigo||—they, in imitation of their predecessors, devoting to it a separate chapter. This state of the testicle undoubtedly is, in some cases, produced by causes independent of a suppressed blennorrhagia. But since it is certain, that the affection has existed at all times, so we think it not unreasonable to suppose, that it may have always produced the same injurious consequences, that are seen now to arise from it. We shall therefore not endeavour to trace the swelling of the testicle to times prior to the middle ages—though so much on the subject of it is to be found in the writings of the Greeks and Arabs.

Nor is it our design to dwell long on the ulcerations of the interior of the urethra. Guy de Chauliac, Valescus of Tarento,¶ Ardern, and most of the physicians and surgeons of the middle ages, describe them at length, and also notice the excrescences or carunculæ, the existence of which was afterwards admitted, for a great number of years, until they were proved by the dissections of the illustrious

where else, all the animosity he bears to the French practitioners. But though his criticism be often well founded, why is he not more scrupulous about copying, sometimes literally, even those whom he censures with so little reserve? Astruc furnishes the basis of his history of syphilis; as he himself acknowledges: but why did he not also confess his obligation to Le Febvre, Baron of St. Ildephont; whose very words he copies, at the same time that he calls the *Bibliotheca Aphrodisiaca* of this author a “mere alphabetical catalogue, written with all the usual levity of the French.”

* *Cirurgia*, tr. xi. doct. xi. c. vii.

† *Chirurgia*, lib. i. tr. xxviii. c. i.

‡ *Chirurgia*, l. i. c. 50.

§ xxiv. 23. f. 30.

|| *Pract. Cop.* 11. 6. c. i.

¶ *Philon.* l. v. c. xxi.

Morgagni, to be mere creatures of the imagination. Astruc endeavours to ascertain whether Amatus Lusitanus, or Philip, was the real inventor of bougies, employed to introduce into the urethra caustics, or other remedies, for the cure of these supposed excrescences. But the remedy, as well as the disease, is of very great antiquity. Paulus Ægineta expressly advises, for the cure of ulcerations of the urethra, the introduction into that canal, of the tube of a quill, and next a tent made of linen, and smeared over with some desiccative ointment.* In such cases, the use of injections is also recommended by Ætius.† The same mode of treatment was employed by Actuarius,‡ and no difficulty would be found in collecting analogous examples from Cælius Aurelianus, Celsus, and even the works of Hippocrates.

All mucous membranes, when once inflamed, retain a disposition to contract, and augment in diameter. That which lines the meatus urinarius is, perhaps, more than any other, apt to become thickened. Hence result the contractions and strictures which cause dysuria, and finally strangury. These accidents could not be of rare occurrence at a period when blennorrhagia was so common. We therefore find them frequently described, but always separately from the disease on which they depend. Thus Valescus of Tarento tells us, that they were sometimes attributed to fleshy and warty excrescences in the kidneys, or in the urinary organs.§

The urinary fistulas either of the urethra or perineum, which are the inevitable consequences of neglected strictures in the urethra, were not unknown to the ancients. They are noticed by Guy de Chauliac,|| and Valescus of Tarento,¶ who viewed them on the authority of Avicenna, and with reason, as the most dangerous and fatal of all ulcerations.

* De re med. iii. 59.

† Tetrab. iv. l. xi. c. 19.

‡ Meth. med. l. iv. c. 8.

§ Philon. l. v. c. xvi.

|| Chirurgia, t. iv. doct. xi. c. vii.

¶ Philon. l. v. c. vi.

An irritation in the genital organs, does not always manifest itself by a mere augmentation in the secretion of the mucous follicles. It often attacks directly the epidermis, and to the inflammation which characterises what was called formerly *arsures*, excoriations and ulcerations succeed, of various extent and depth. Now the ulcerations, termed chancres,* have existed long before the end of the fifteenth century. Argelata,† and Valescus,‡ express themselves with so much precision on this point, that their meaning is understood, without the least difficulty. In the fourteenth century, we find Guy de Chauliac,§ Gordon,|| and Arnaud de Villeneuve;¶ in the thirteenth, Lanfranc,** and William Salicet,†† and more remotely Rogers,‡‡ and Abucasis,§§ and advancing still further towards antiquity, it would be easy to trace this disease among the Romans and Greeks, since Paulus Ægineta, Aëtius, and Oribasius speak of chancres in very clear terms, and there is hardly a single species of ulceration of the genital organs, that has not been described by Celsus. But these researches have already been made, and may be found in a dissertation written by the celebrated Sprengel, and supported in the University of Halle, by Schmidt.||||

In former times, as well as in our own, these ulcerations did not always deprive the skin simply of its epidermis.—Extending, in some cases, very deeply—they produced fis-

* It might perhaps, be presumed, that the word *chancre* (*carolus*) is derived from the Italians having given the name of Charles VIII. to one of the symptoms of syphilis—for reasons analogous to those that led them to give to this last, the appellation of French disease. But, anteriorly to the epidemic, the word is found in Argelata, (*Chirurg. l. i. tr. xii. c. i.*) A long time before this, surgeons were acquainted with a phagedenic ulcer of the genitals, which was called *caries*. The learned Hensler conjectures, that this word passing in the popular language, was insensibly converted into *carioli*, *caroli*.

† *Chirurg. l. 1 tr. xii. c. 1.*

§ *Cyrurgia, tr. ii. doct. i. c. ii.*

¶ *Breviar. l. ii. c. 43.*

†† *L. c. l. i. c. 48.*

§§ *L. c. l. ii. c. 56. p. 269.*

|||| *Dissertatio de ulceribus virgæ, in 4to.—Hale, 1790.*

‡ *Philon. l. vi. c. 6.*

|| *Lil. med. p. i. c. 22. 23.*

** *Cyrurgia, l. 1. 48.*

‡‡ *L. c. l. iii. c. 34, 35.*

tulæ, destroyed the integuments of the scrotum—attacked the very substance of the testicles—caused alarming hemorrhages, and finally led to gangrene and sloughing of the genitals, and even death.—Not to extend the number of our quotations, we shall merely remark, that Paulus Ægineta* asserts, that in many cases the skin of the prepuce, and sometimes part, or the whole of the glans penis, becomes gangrenous and sloughs: something similar is to be found in Celsus.†

Phymosis and paraphymosis, being the consequence of the inflammatory swelling incident to chancres, have necessarily co-existed. We therefore, frequently find them described, in the course of the middle ages. Guy de Chauliac notices the first of these affections, under the name of *præputii clausura*.‡ According to Beckett, Ardern makes mention of it, and so does Roger,§ and Albucasis,||—Argelata says that he observed paraphymosis¶—Paulus Ægineta describes it with the greatest precision, and attributes it sometimes to excrescences; in other instances to ulcerations; though in general, to inflammatory swelling.**

By Astruc, we are told, that buboes were first observed by Nicholas Massa, in 1532; and in 1540, by Aloysius Lobera. But we have just seen that chancres were known in remotest antiquity. The same thing must naturally have taken place with respect to buboes, which are their most common consequences. It were unnecessary to enter into a formal refutation of the proofs which Astruc brings forward in support of his assertion. They are so absurd, so much in the spirit of a man who endeavours to turn to his advantage, even those arguments, the most directly opposed to his views, that they do not deserve to engage seriously our attention. Without pausing therefore, to show, in opposition to his opinion, that buboes were seen subse-

* De re med. vi. 57.

† Cyrurgia, tr. vi. doct. ii. c. 7.

|| Chirurg. l. ii. 56. p. 269.

** L. c. vi. 55, 56.

† L. vi. c. 18.

§ Chirurg. l. iii. c. 34, 35.

¶ Chirurg. l. ii. tr. xxx. c. 2.

quent to 1493, and anteriorly to 1532—we shall merely mention, that they are indicated and described in Argelata, Salicet, Lanfranc, Ardern, Theodoricus, &c. Being a disease, the most evident to the senses, they must naturally have been among those maladies, first observed by physicians. The older writers attributed them, as we do at present, to very different causes, and did not think them to depend, in all cases, on the peculiar action of a morbid pestilential principle.

It would be, perhaps, difficult, to bring into a narrow compass, all that is contained in the ancient writers, and those of the middle ages, on the subject of those exanthematous affections, now denominated venereal. We find, it is true, a variety of notions on such cutaneous diseases. But from the imperfect descriptions, the great changes in their nomenclature, the obscurity of terms, now, for the most part unknown—a complete work on the subject, would prove almost beyond the scope of human industry. There are, however, a number of passages which would seem to indicate, that several of these diseases were really observed before the end of the 15th century. We learn, from Arnould de Villeneuve, that he saw pustules on the scrotum,* and Brunus of Calabria treats of the *formica* of the penis,† which term served to denote a sort of pustulous and eating tetter. Aëtius also saw itching scurfs on the scrotum, and on the genital organs of females.‡ Oribasius makes mention of ulcerations of the vagina, accompanied with itching, and scabby concretions.§ Tornamira likewise speaks of herpes of the genital organs.||—Paulus Ægineta of an erysipelatous inflammation of the anus,¶ and Aëtius of a sort of chrySTALLINE, which, by means of a speculum, he discovered in the interior of the vagina.**

The chrySTALLINE, the frequent result of the most infamous

* Breviar. l. ii. c. 43.

† Chirurg. magn. l. ii. c. 14.

‡ Tetrat. l. iv. 2. c. 18, l. iv. 2. c. 109.

§ Ad Eunap. iv. c. 112.

|| Clarificat. super nono. Alm. p. 88.

¶ De re med. iii. 59.

** L. c. iv. 4. c. 108.

of all vices, must necessarily have been known as early as the vice itself, which was mentioned even by Lucanus—and hence we find a description of it in Cælius Aurelianus.* How then, could Astruc assert that it only appeared in 1610?

No local affection of the genitals of either sex, is perhaps more frequently noticed by authors, than warty excrescences. Lanfranc places them among those affections which arise on the prepuce, from an impure intercourse.† Theodoricus divides them into two species, which he denominates *venucæ* and *porri*—the first, having a large base—the second, hanging by means of small pedunculi.‡ Brunus of Calabria§—Roland of Parma||—and Albucasis,¶ also make mention of them. The writings of the Greeks abound with passages relating to warts, of which two species *μυρμηκία* and *αποχόρδον* were described, not only in the works of Hippocrates, but likewise in those of Galen,** Celsus,†† and Aëtius,‡‡ whose words were afterwards copied by Paulus Ægineta.§§ No longer, therefore, can Astruc maintain, that the first description of warts was given by Maynard, in 1514, since we could prove, even did we confine ourselves to the writers on syphilis, that they were mentioned in Widman's work, as early as 1497.

The same may be said of the fleshy or condylomatous excrescences, which are perhaps more frequently met with, than the preceding—and received the names of *crista*, *ficus*, *marisca*, *racemus morum*, &c. &c. according to their difference in shape, colour, &c. We shall here be sparing of citations, because it would be easily in our power to multiply them, even to a very great extent: suffice it to say, that minute descriptions of these excrescences, are found in

* Morbo. chron. vi. 9.

† Chirurgia, iii. 16. 38.

|| Chirurg. iii. 31.

** De tumor. præst. nat. c. 15.

‡‡ L. c. iv. 2. 3.

† Chirurgia, tr. iii. doct. iii. c. ii.

§ Chirurg. magn. ii. 14.

¶ L. c. iii. c. 73. p. 319.

†† V. 28. 14.

§§ L. xxx. c. 8.

William Salicet,* Leonhard Bertapaglia,† and Guy de Chauillac.‡ These tumours, indeed, have at all times had a bad reputation, as is testified by the satires of Juvenal and Martial. The Greek and Roman physicians have also given us lengthened accounts of these affections, as may be ascertained in reading Paulus Ægineta,§ and Aëtius.||

Rhagades, which consist of fissures in the skin, from which oozes an acrid humour that excites in the surrounding parts an erysipelatous inflammation, accompanied with itching, or burning pain, were not less known to the ancients, than the preceding affections. They formerly appeared, as they do now, more on the female organs of generation, and also about the verge of the anus, and these attest the practice of a vice, the most repugnant to the laws of nature. Celsus,¶ Scribonius Largus,** make mention of them—a more full description may be found in Aëtius,†† and Paulus Ægineta‡‡—but, it is especially among the Arabians, that we are to look for long and minute details of these affections—as there is not one, among the many surgeons of the middle ages, who has not thought proper to speak of them.

From the preceding observations, it is rendered evident, that there is not one of the many derangements of the animal economy, attributed, at the present period, to the syphilitic virus, that may not be traced in the writings of the Greeks, Romans, or Arabians. Eating sores of the prepuce and glans—puriform discharges from the urethra,—cancer and gangrene of the penis—enlargement of the inguinal glands—tumefaction of the testicles—abscess, pustules, and gangrene of the vagina—fistulæ of the perineum, and scrotum—strictures in the urethra—condylomatous tumours near the anus—warts on the penis and labia—rhagades, es-

* Chirurg. i. 45.

† De apostemat. c. 16.

‡ L. c. iv. 2. 7.

§ De re med. iii. 59. iv. 58. 71. 80.

|| L. c. iv. 2. c. 2, 3, 4.

¶ V. 18. 7.

** De compos. medicament. c. 89, 90. †† L. c. iv. 2. c. 3. 14, 15. iv. 4. c. 107.

‡‡ De re med. vi. 80.

pecially near the verge of the anus—all these affections were known to the ancients, who have described them with more or less fulness, clearness, and sagacity. How is it then, that morbid phenomena, which they had so often observed, as we are entitled to suppose, from the minuteness of some of their descriptions, did not suggest to them the idea of the venereal disease, and determined them to place, in the same class, this great multitude of affections attacking the genitals? The cause of their silence on the subject, is clearly attributable to the different theories which have reigned in the schools of medicine, at the various epochs of its history.

The ancients, who possessed too little knowledge in anatomy to enable them to form correct views of the different functions of the animal economy, regarded the seminal fluid as the surplus of what they denominated the third digestion—consequently as a product of the fourth, a superabundance of the juices destined to the nourishment of the body. They thought that this excess was derived from all parts; that passing along the spinal marrow to the kidneys,* it next reached the testicles, by which it was sent to the penis, through which latter organ it passed out. This theory is to be met with in the treatise *περί σπέρματος*, which forms part of the works of Hippocrates. It was next adopted by Pythagoras—introduced by Plato in his *Timeus*—and supported by Alcmeon, Democritus, Epicurus, and most of the Greek philosophers. By Aristotle, however, it was vehemently combated. But his authority gave way to that of Galen, who extended it to its utmost stretch, and rendered it pre-

* Most of the physiologic theories of the ancients, were established on too hasty conclusions drawn from true and well observed facts: having, for example, observed that the pleasures of love diminish the mental faculties—cause a weakness, especially in the lumbar region, and when carried to excess, produced a disease characterised by pains along the course of the spine—they immediately concluded that the spermatic fluid is derived from the brain, and passes down in the direction of the spinal marrow. This was the theory of Plato. Others again, thought that the semen was blood, elaborated and digested by the heat of the genital organs. They grounded this belief on the fact, that blood frequently passes by the urethra after excesses in venery.

dominating, until forced by time into a deserved oblivion. When Buffon, therefore, advanced his famous doctrine of organic molecules, he did not deserve the credit of an invention: he merely heated with the fire of his brilliant imagination, an hypothesis which the progress in anatomy had caused to be abandoned.

Governed by their theories, the ancients were of opinion, that a moderate evacuation of the semen was indispensable to health. They accordingly recommended a prudent use of the pleasures of Venus—prohibiting, however, the indulgence before the end of the third digestion—and minutely laid down the precautions necessary to be taken, so as to obviate danger. *Quia in coitu quædam est delectatio—ideo dixi, dum de delectatione loquebar, ut eum evitaret, quantum posset, ad tempus, ad minus; et si non posset abstinere, uteretur saltem cum muliere non infectâ, et hoc digestionem completâ.* These are the words of Gaspar Torella. They supposed that when the semen remains too long in its reservoirs, it becomes altered, and turns into a poison, which finally affects the whole economy. This is what is meant by the *virus vitale* and *genitale* of Pliny. Believing this liquid to be converted into deleterious vapours, which affect the brain and heart, they considered an accumulation of it as the cause of epilepsy, mania, melancholia, and nymphomania. To its acrimony, they imputed certain ulcerations of the penis, and especially the blennorrhagic discharges, and hence these last received the improper denomination of gonorrhœa, which was retained until the year 1650, when Turquet de Mayern, sensible of its inappropriateness, proposed as a substitute the no less improper one of *suppura*.

The ancients, although tracing so many disagreeable consequences to continence carried too far, on the other hand equally considered too much excess in the enjoyments of love, as exercising a powerful influence over the state of health. They had observed that such indulgence not only affected the body, which they weakened and wasted, but in very many cases became the cause of

occult diseases, and more especially of diseases of the skin. *Communiter coitum multiplicantes satidi aut scabiosi apparent.* Time has only served to confirm the correctness of this remark. This is the reason why the venereal act constituted one of the most important chapters of their dietetics. They recommended, as far as possible, abstinence during the time of epidemics—which precept is as ancient as Avicenna, whose very words were sometimes copied by the writers of the middle ages—and so far was it considered as an aphorism sufficiently known and incontestable, that it is frequently found without even a reference to the name of its author.

Erroneous as the idea was of the older writers on the subject of the pretended virus, engendered by the retention of the semen, they entertained one still more terrible as to the pernicious qualities of the catamenial discharge. It had been taught by Aristotle, that this fluid consists of the surplus of the nutritive juices, a sort of semen less elaborate than that of man—and which, owing to its crudity, became the cause of a number of morbid effects. The jests of Lucanus on the *virus lunare* are sufficiently known, as well as the popular stories collected by Pliny on the subject of the catamenia, which he denominates *mensium piacula—monstrificos*, or *maribus exitiales atque pestiferos menses*. All discharges whatever were, at that time, confounded with this periodical flux, as is evidently shown in the work of Hippocrates on the diseases of women, where it is said that buboes often appear, when the menses are changed into pus and produce ulcers. From these notions arose all the very many prejudices on the subject of this discharge, to be met with in the older writers, and which have been continued, in some degree, to this very period. A collection of them is to be found in the very curious work of John de Ketam.* It was more especially buboes that were ascribed to this fluid, and to express the effect it produces in tumefying the inguinal glands, the poet Lucilius invented the word *imbu-*

* Fasciculus medicinae, in fol. Venet. 1513.

binare.—Hæc te imbubinat et contra te imbulbitat ille (infans).

These ideas being very much diffused during the middle ages, the menstrual fluid was considered as a combination of the most noxious impurities of the body. *Nota*, said Arnauld de Villeneuve,* *quod matrix est ita in corpore mulieris locata, tanquam receptaculum omnium superfluitatem corporis, quemadmodum est sentina navis, ad quam omnes superfluitates decurrunt.* To such an extent did they carry their prejudices, that the linen which had served women during menstruation was prohibited for surgical purposes—and this was especially insisted on by Marcellus Cumanus. An intercourse with women who had lately menstruated was not permitted, under the conviction that it was the source of leprosy, and of a number of other diseases either of the skin or genital organs—which sanative precaution the legislator of the Hebrews had previously thought necessary to impose as a law on the filthy (*Sale*) people of God. What, however, appears still more extraordinary, is, that the menstrual fluid was more feared than all other discharges, as they were thought to be more elaborated, and therefore more capable of dissolving the buboes caused by the action of the former.

When finally, none of the three preceding explanations sufficed, recourse was had to the theories of *emuntories*. Conformably to the doctrine of Galen, it was believed, that each noble part of the body, has an outlet for the escape of any morbid matter which it may contain: these outlets were denominated *emuntories*. The brain, the heart, and the liver, were considered as the parts most essential to life. The first, had for its emuntories the glands of the neck; the second, those of the axillæ; and the liver, those of the groin. The liver was consequently accused of all those affections, attacking the genital organs, and the lower extremities: *inguina emuntorium hepatis*, said the ancients. Thus a certain bad constitution of the humours originates

* Breviar. L. iii. c. 7.

in the hepatic organs; and these vitiated fluids, being of a bilious nature, and passing down to the organs of generation, cause ulcerations. But, on the contrary, if of a sanguine, inflammatory, or melancholic nature, they either remain mixed with the mass of blood, producing hemorrhoids, or else, separating from it, are thrown on the skin, and occasion rhagades exanthemata, warty or fleshy excrescences, &c. The Greeks were far from confounding hemorrhoids with the other tumours arising near the anus: but the physicians of the middle ages, led into error by the theories of Avicenna, attributed to the same cause all diseases appearing in these parts—and indeed Albucasis went so far as to maintain, that time often converts hemorrhoidal tumours into warts. We can, from this, at once account for so much malignity being attached to these tumours, which were always supposed to constitute an obstinate, and often a rebellious disease.

These observations we might easily have lengthened, were we permitted to pass the bounds necessarily imposed on this chapter: but our views, perhaps, are sufficiently explained by what has been said. It has been our endeavour to prove, that coolness and impartiality are indispensable, when we undertake to read the works of the ancients, and also how necessary it is for the purpose of avoiding error, to be well acquainted with the different theories that have reigned at the various epochs of the science. It is this which gives to the history of medicine so great a degree of interest. While it renders us familiar with doctrines before unknown to us, and makes us trace their origin, progress, and fall, it also teaches us not to form our judgment of the ancients from the very limited views of our present hypotheses. By it, moreover, we are led to a prudent scepticism. In presenting to our observation such a multitude of theories, successively praised, overthrown, and which have vanished like so many ephemeral meteors, it admonishes us to become more doubtful even of those of which at the present time we are so vain.

(To be continued.)

An Account of a Monster. Communicated in a Letter to the Editor by JOHN K. MITCHELL, M. D.

CANTON, Empire of China, 26th of January, 1821.

MY DEAR SIR,

I have had, at length, the good fortune, to examine for myself, the double child of whom I sent you the description, drawn up by Dr. Livingstone.* Had Dr. L. himself, seen this boy, his account of the case would have been such as to have rendered any other unnecessary. But as he drew up his statement solely from the report of others, not professional men, and of consequence incapable of conducting an accurate investigation—his letter is both defective, and erroneous. As such phenomena as this appear so seldom, and as we are in possession of no very detailed description of those which have appeared, I hope it will not be deemed presumptuous in me, to undertake to describe, as seen by myself, what so able a man as Dr. Livingstone has failed in well delineating; only because he drew his information from those who were not qualified to give a satisfactory account of such a subject.

Aké is now sixteen years of age, four feet, seven inches in height, and possesses a frame, rather delicate than robust. His pulse, which beats *upwards* of ninety strokes per minute, together with a certain meagreness of aspect, might lead to the opinion, that he does not enjoy good health. But he persists in declaring his appetite and digestion to be excellent—and affirms, that his general health is not inferior to that of other persons of his age and district. That this should be true, seems very extraordinary, when we look at the burden with which he is encumbered, and find the form of a headless child, more than thirty inches long, depending from his sternal and epigastric region.

According to the report of his uncle, who has become his

* The description here alluded to was published in the third number of this Journal. But in some particulars it is so deficient, that we are induced to insert the present account of this extraordinary *lusus*, which is full, perspicuous, and satisfactory.—EDITOR

exhibitor, his entrance into the world was tedious and painful. The labour was at length, happily completed, and after all her sufferings, the mother has survived to give birth to two well-formed children. So soon as the child made its appearance, the cause of the difficulty of parturition was explained. As large as children usually are, at the period of birth, this boy had the headless form of a male child, nearly as large as himself, attached by its neck, breast, and belly, to *his* breast and epigastrium. The sight of so strange a monster, instantly produced, in the attendants, a desire to put it to death: but maternal tenderness, and the timidity of a young midwife, succeeded in preserving it from a fate, to which, it is said, even perfect children are often exposed in this country. As the child was vigorous and healthy, the care of its mother was not lost on it; and as it increased in size, and was found to be an object of great curiosity to the people of the neighbourhood, the wish to preserve its life, was encouraged by the hope of its becoming, some day, a profitable possession.

Not originally so large as the boy himself, the parasitic child did not keep pace with him in growth, and is now little more than half his height. If it ever had its form as well proportioned as that of its supporter, a point which may well be questioned, the dependent has long since lost its symmetry, and become both meagre in figure and defective in structure.

Although, at a considerable distance, the parasite has the appearance of a regularly formed child—on a closer examination we discover, that it is far from deserving such an appellation. Besides the want of a head, we perceive, that the left shoulder has no *scapula*—that the spine, which appears to emerge from the chest of the principal, cannot be traced farther down than the place where it dips beneath the shoulder-blade*—that the distance between this bone and the top of the sacrum, is not two inches, and that this

* Mr. Pearson, chief surgeon of the Hon. India Company's establishment at Canton, thought he could feel the spine, between the *scapula* and *sacrum*—and at first I thought I felt it also. Subsequent examination, however, made me doubt its existence.

short back, formed of *soft parts*, sinks deeply between the shoulders and pelvis, so as to give to the trunk the appearance of being bent backwards. Proceeding downwards, along the back part of the parasite, we find the pelvis large and well formed, the nates plump and protuberant, and the anus imperforate; a deep dimple occupying the place of this posterior outlet.

On turning the parasite round, which the boy readily accomplishes with his proper hands, the belly and organs of generation are brought into view. The first thing to be now observed, is, that the adhesion of the two bodies terminates below, at a point about an inch above the navel of the principal, and two inches above the pubes of the dependent, making the whole length of the adherent surface nearly eight inches. As only the hypogastric region of the belly of the parasite is exposed, we should not expect to find any appearance of a navel: nor can any vestige of an umbilicus be discovered either there or in the lower angle of junction. The navel on the abdomen of the greater body, has the appearance of having been double. The excoriated state in which it is kept by the moisture and attrition of the parasitic belly, has, it is said, given it this look, and requires the constant intervention of a roll of cloth, to prevent ulceration.

The organs of generation are very fully developed. A penis, three inches long, increasing as it erects itself, and a scrotum, which might contain the testes of a vigorous adult—are no inconsiderable *furnishings* for a headless boy of sixteen years of age, and thirty inches of stature. On examining the scrotum, no testes were to be found—but a tumour, at the abdominal ring of the left side, the peculiar pain occasioned by pressure, together with the capability of erection exhibited by the penis, warrant the conclusion, that the parasite has at least *one* testicle. A congenital phymosis prevents the retraction of the prepuce. A probe, however, passed readily around the glans penis, and shows this part of the structure to be in a natural condition. The timidity of the lad rendered the examination of the

urethra impossible, but it seems pervious, and emits from its orifice *guttatim*, a mucous secretion, which by the Chinese has been called its semen.

The limbs of the parasite, where they join its body, are round and plump, but gradually lose this appearance, and degenerate into great tenuity towards their extremities. Nature appears to have been incapable of *finishing* this anomaly, and has left the hands and feet imperfect. The fingers are complete, as to number, but very feebly developed. One of the feet is clubbed, whilst only three toes are found at the end of the other. The circulation, indeed, in the hands and feet is so feeble, that they are cold even in the warmest weather.

All the joints of the arms admit of a limited motion. Those of the lower extremities are stiffened, the hip-joints, probably by ankylosis; the knee-joints, by a strong adhesion between the back of the thigh and the calf of the leg. According to the story of the boy and his uncle, he could, when four or five years of age, move by his own volition, these limbs, which now, incapable of *voluntary* actions, require his proper hands to alter their position. At that time of life, he was sprightly and playful—though much obstructed in his gambols by his dangling companion. To remedy this evil, as well as to keep the little limbs out of the way of injury, Aké's mother tied the shins to a sling which depended from his neck. The effect of this bandage was, to bend the thighs on the pelvis, the legs on the thighs, and to bring the heels nearly into contact with the buttocks. In fact, though not *resting* on its knees, the parasite is in a *kneeling posture*, with its limbs crossed above the ancles, and its soles turned towards the spectator, when standing in front of the lad. By this flexure, the knees of the dependent came into contact with the trunk of the opposite body, and, passing to the side of the pelvis, were applied, as if the little appendage were attempting to climb. By degrees, if we may credit my Chinese informants, the disused and suspended members, lost the power of responding to the will of their owner, and became so rigid as

to maintain their artificial posture, without the support of a sling. The direction of the sling, along the *sides* of the parasite, necessarily confined its arms, and deprived them also, it was affirmed, of spontaneous mobility. The hams, soon after the suspension, became excoriated, granulations sprung up, and an adhesion of the calf of the leg to the back of the thigh, entirely destroyed the motion of the articulation at the knees.

As before-mentioned, there is only one shoulder-blade. Attached to the arm of the right side, this bone is so large as to extend across the back, nearly to the place where the left humerus lies buried among muscular matter. The scapula crosses, of course, the spine, which dips under it, and cannot be certainly ascertained to emerge from its base. The connections of the scapula and humeri with the neighbouring parts, is so loose, as to permit them to be moved, in a sliding manner, from the pelvis of the parasite, up to near the top of its little neck. The left humerus was fractured about two years ago, by a fall from a buffalo. Having been carefully treated, it has taken a considerable bend at the place of fracture, but is now firmly united, and exhibits the bony ring usually felt after recovery from such accidents.

The *chest* of the parasite, if a fleshy sac deserve such a name, is by far the most anomalous portion of this monster. The abdomen and chest appear to be furnished with the same parietes, and to form one large muscular sac. Two-thirds of this sac are united in front to the chest and *scrobiculus cordis* of its supporter, and is attached, on the sides of the adhesion, to two ridges, probably of bone, which rise from the front of the principal, to the height of an inch. Within the area bounded by this ridge, there appears to be a vacuity in the bony structure of the chest of Aké, and it seems probable that, if the two chests do not form one cavity, they are only separated from each other by soft parts. There is more proof of this defect, than the touch alone affords—for when the lad coughs, or breathes, the sac of the parasite is puffed up like a bladder, and is

elevated in a much greater degree, than the ribs of the principal—evincing most conclusively, that either air or soft parts have been forced into it.

The deficiency of bone in the chest, and the great laxity of its soft parts, enables the boy to rotate the little body, so as to bring its buttocks into contact with his proper belly, and to afford the spectator a front view of the abdomen, and organs of generation of the parasite. In doing this, the belly and chest are much twisted, and the skin thrown into great wrinkles.

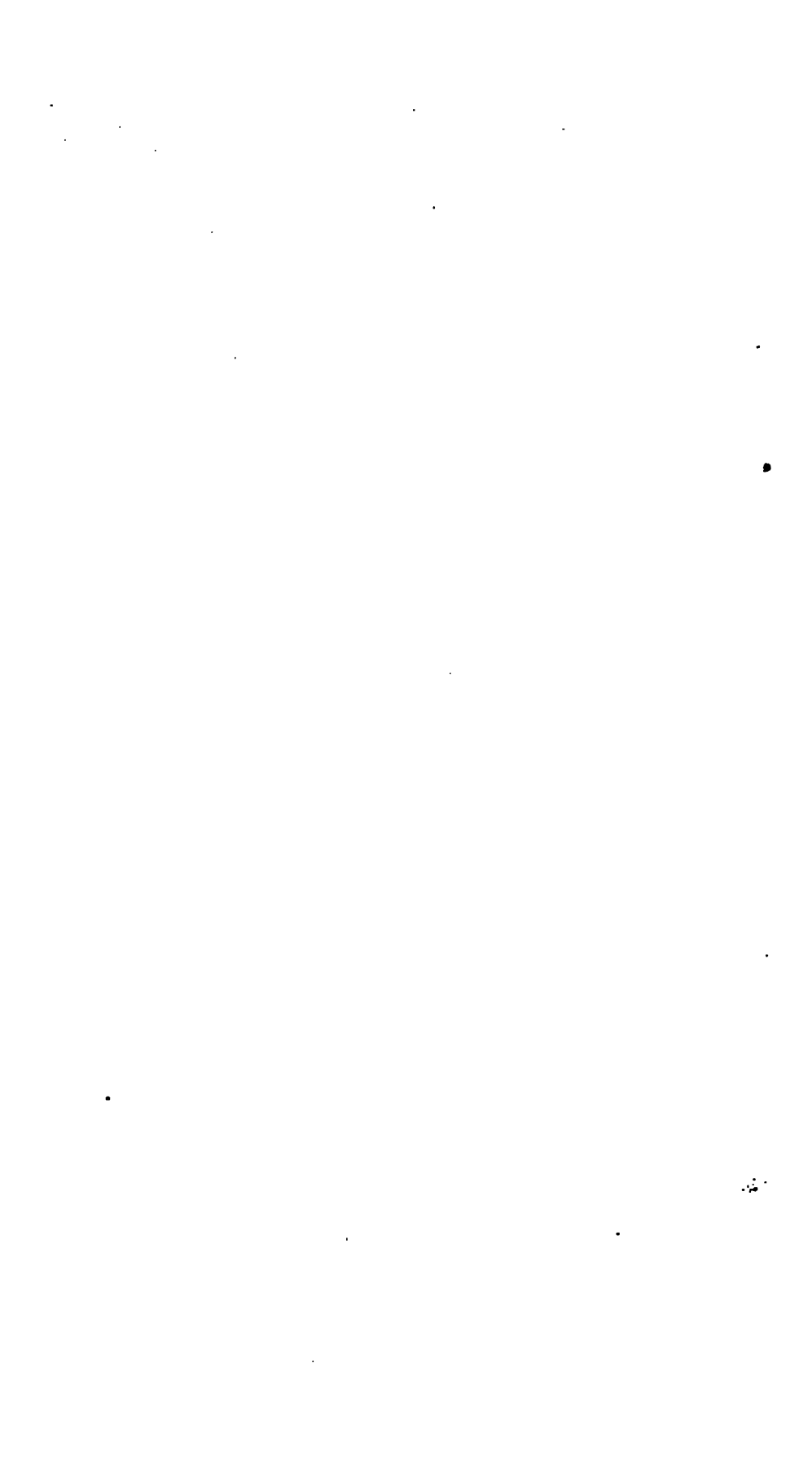
On the sides of the chest of the parasite, and at the extremities of its greatest transverse diameter, are found its nipples. They are not more than an inch and three quarters from the anter. super. spine of the ilium. The nipples of the principal are on a line with the shoulders of the dependent, and at least an inch beyond them. The neck of the parasite comes off from the median line of the sternum of the principal, about an inch and a half below the top of that bone. From this point to the place where the spine is lost under the scapula, the spines of three vertebræ are discoverable.

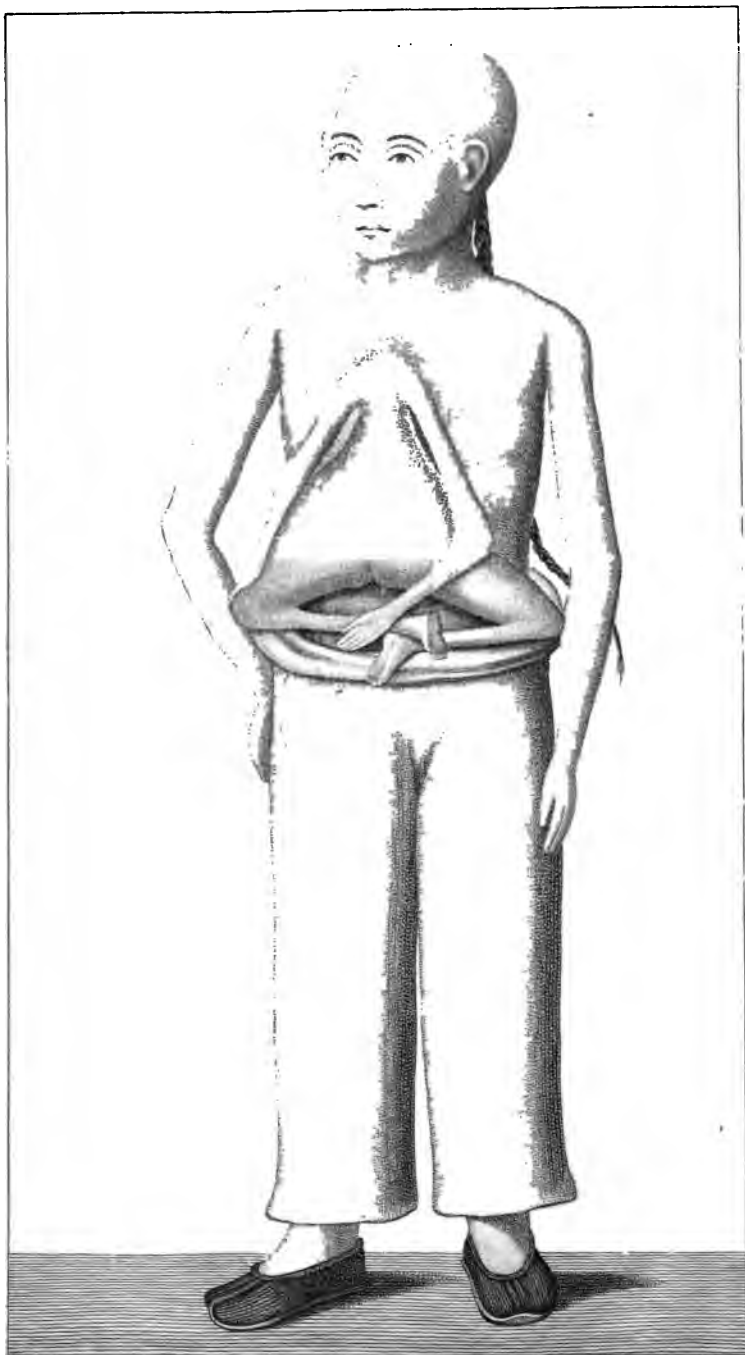
After a minute and careful examination of every part of the parasite, I could discover pulsation only in one place. Though obscure, the action of the femoral artery was sufficiently distinct to enable me to ascertain that it synchronized with that of the radial artery of the principal, and that it gradually increased in frequency as the day advanced, beating 90 in the morning, and 115 towards night. As it had been thought possible, that the monster might possess two hearts, and, of course, two circulations, I took much pains to ascertain the contents of the parasitic chest. The peculiarly soft structure of this part, makes it probable that no heart could act there, without instant detection; and yet after a most thorough investigation, not even an obscure pulsation could be found. I conceive myself therefore entitled to conclude that the parasite has no heart, at least no heart in action. Dr. Livingstone stated, on the authority of Dr. Gomez of Macao, who had seen this singular creature, that the carotids have been felt. Allured

by the hope of deciding by means of their pulsation, in what direction the tide of blood flows along the neck, I searched most carefully for these carotids, as they were called—but could not perceive any thing like pulsation in any part of the neck. The uncommon sensibility of these parts, stretched to a great degree by the weight below, rendered it extremely difficult to make a *satisfactory* search, but I did enough to render it probable, that Dr. Gomez was mistaken.

To amuse the vulgar, to whom this poor boy has been presented as a show, his keepers have spread a report, that the two bodies urinate in concert, and that there is at times a seminal discharge from the penis of the parasite. Sometimes they have been urged to give practical proof of this synchronous micturition, and have then said, that the principal made water often, and that only on every second or third day, I forget which, the *little gentleman* accompanied him in this operation. To make the monster still more monstrous, it was stated to the public, that the body of the principal, referred to itself any pain inflicted on the parasite; and that a sly pinch of the dependent's hip, caused the sudden application of the hand of the other to his proper hip, as if the sensation were there. Not only did the boy contradict this artful tale of his keepers, but he also exposed the motives for the deception, and avowed, that it was got up for purposes of interest. It was, indeed, evident enough, without his confession, that the tale of vicarious endurance was untrue. The body, and especially the neck of the appendage, is possessed of acute sensibility; and the lad was observed to scratch the nates of this offset, without repeating the process on his proper buttocks. The penis, he says, has never urinated: nor has he ever seen any seminal discharge issue from it, although this member is excitable to erection, both by imagination and titillation. When erect through irritation, the proper penis of his own body did not sympathize with it.

As the models and drawings of this *lusus naturæ* have been made by Chinese artists, and as they do not study





A CHINESE LUSUS NATURE.

proportions, the imitations are extremely erroneous. None of them represent the appendage of a proper size, it being in all proportionally too small. I have, therefore, deemed it proper to subjoin to this statement, a table of the actual admeasurement of the principal parts of this singular excrescence.

Dimensions.

	Inches.
1. The whole length of the parasite from neck to heel is about - - - - -	31
2. The length of the lower limbs - - - - -	19
3. The length of the body and neck - - - - -	12
4. The length of the arms, including the hands - - - - -	18½
5. The distance from the base of the scapula to the top of the sacrum - - - - -	1½
6. Length of the back of the neck - - - - -	2
7. Length of the left foot (the one which has three toes) - - - - -	5
8. Length of the penis, when flaccid - - - - -	3
9. Its circumference - - - - -	2½
10. The circumference of the body above the pelvis - - - - -	10
11. The circumference of the pelvis - - - - -	18
12. The circumference of the top of the thigh - - - - -	11
13. Round the knee, and adhesions of the ham - - - - -	14
14. The arm near the shoulder is in circumference - - - - -	7
15. The elbow - - - - -	6
16. Middle of the fore-arm - - - - -	3
17. Wrist still less; (the measurement lost)	
18. The perpendicular height of adherent surface is nearly - - - - -	7½
19. The circumference of the united surfaces is nearly	17½

You have now before you all that I conceive can be certainly known of this curious being, previously to his death—and, indeed, all that will ever be known of it, if it should die in this country. Could it be carried to Europe or America, it would so amply repay an adventurer, that I hope you may yet, by the cupidity of a speculator, be af-

forded a sight of it. This is highly desirable, as it would, perhaps, in the event of the lad's death, permit the application of the demonstrative knife of the anatomist to the case, and develop the interior secrets of his anomalous formation. I do not conceive the case to be much more than a matter of mere curiosity: nor do I know of any physiological deduction to be made from it, which might not have been drawn from the anomalies of this kind formerly described. If there be any thing more derivable from it, certain I am that in addressing this statement of facts to you, I have submitted them to one most highly qualified to extract from them all that is truly valuable.

With sentiments of respect and esteem, I am, dear sir,
Your affectionate pupil,

JOHN K. MITCHELL.

TO PROFESSOR CHAPMAN.

ART. VI. *The History and Treatment of Bony Tumours.*

By W. GIBSON, M. D.

IN a preceding number of the Journal, I have given a circumstantial account of Exostosis: I shall now treat of Osteo Sarcoma.

The older surgeons employed the terms *Osteo Sarcoma*, *Osteo Sarcosis*, and *Osteo Steatoma*, to designate such tumours as were formed by the irregular admixture of bony, fleshy, or fatty particles. By the moderns, *osteo sarcoma* has been retained, as more expressive than the others.

This disease may attack any of the bones, but the long bones of the extremities are commonly affected. According to Boyer,* the os innominatum is more subject to the disease, than any other bone in the body. The progress of osteo sarcoma varies in different cases. Sometimes, a long continued, deep-seated, lancinating pain, occupies some part of the bony system, long before any tumour or swelling

* *Traité des Maladies Chirurgicales*, tom. iii.

is evident. At other times, a distinct tumour is perceptible from the first, gradually increases, and is not painful or inconvenient until it acquires considerable bulk, and takes on inflammation. The pain is then extremely severe. The form of the tumour is either smooth and circumscribed, or irregular; for the most part, the general swelling is studded over with knots or protuberances of various dimensions; the apices of which, in the advanced stages of the disease, are apt to ulcerate and discharge a small quantity of thin, fœtid matter. Often, however, the whole tumour becomes enormous, and extremely ponderous, without the slightest ulceration of the integuments. When examined by the touch, the tumour feels solid and incompressible, or if any evidence exist of fluctuation, it is only at particular spots, and is even then very indistinct. Old persons are seldom subject to osteo sarcoma; I have met with two instances, however, in which the disease occurred in patients beyond the age of seventy. When young persons are attacked, a perceptible alteration is soon evinced in their general health and appearance. They become sallow, thin, and debilitated; and the bowels are alternately constipated and relaxed. Not unfrequently, a cough and tightness of respiration, are constant, and very troublesome attendants. In the advanced stages of the complaint, and especially when the tumour is large, ulcerated, and sloughy, hectic fever, and all its consequences, gradually undermine the strength of the patient, and finally destroy him. In several instances which have fallen under my notice, the patient has died from confirmed phthisis pulmonalis.

When the structure of osteo sarcoma is examined by dissection, several interesting circumstances are developed. The integuments being raised, the muscles and tendons are found removed from their natural situation, and spread out and thinned to such an extent, as to cover a much larger surface than they usually occupy. The vessels and nerves of the part are also raised, and made to approach the surface of the tumour; to this surface the periosteum will be found closely to adhere, and to give a firm, dense, pearl-

coloured covering, which is with great difficulty separated from the diseased bone. The bone itself in immediate contact with its investing membrane, will be found smooth on the surface, and either uniform and regular, or else disposed in lobulated masses of different forms and sizes. Sometimes, these are extremely regular, of a rounded form, and resemble very much a cluster of grapes. At other times, several large masses are joined together, and present the appearance of an artichoke, or protuberant potatoe. When the bony texture of these tumours is cut, forcibly separated, or crushed, a number of irregular cells are brought into view, containing either a thick, cheesy, lardaceous, medullary matter, or else a gelatinous semi-transparent fluid, which oozes out of its own accord, or can be removed by mechanical means, or by maceration,—leaving the sides of the cavities lined by a very fine and delicate membrane. The morbid tissue of bone, will then be found to consist of innumerable spicula, disposed in endless variety of ramifications, and shooting out into fantastic forms, resembling some species of coral, or assuming the shape of certain vegetable productions. I have in my possession, a very fine specimen of osteo sarcoma, of several pounds weight, taken from the upper jaw of an ox; and presented to me by a very intelligent young physician, Dr. Townsend of Maryland, to whom my cabinet is indebted for other valuable contributions. In this specimen, the cells which I have described, and the arrangement of the bony spicula, are uncommonly well displayed, owing to the magnitude of the tumour, and the original texture of the bone upon which it is reared.

The origin of osteo sarcoma, is involved in great obscurity. It appears, sometimes, as an hereditary disease, and as such, has been transmitted in succession to numerous individuals of the same family. A very remarkable case of the kind, is recorded by Boyer, in which the father, brothers, sisters, nephews, and children of a woman thirty years of age, and who otherwise enjoyed good health, had from their earliest infancy, bony tumours on the tibia. The

ated and altered in texture. Under the muscles the two chief lobes of the tumour were very conspicuous, and covered by a dense compact shining membrane, which was with difficulty separated from the bone. The bony tumour was found to consist of the greater part of the fibula, expanded into a large, porous, spongy mass, filled with an infinite number of cells of different dimensions, and separated from each other by ridges or partitions. These cells contained a fleshy, and in some instances, a steatomatous looking matter. That portion of the fibula naturally attached to the ankle was cartious and disjointed, had lost all traces of its original appearance, and was so loosely connected with the surrounding parts as to give considerable latitude of motion to the lower tumour, and produce that crepitation which had been observed antecedent to the operation. The upper end of the fibula, to the extent of two inches and a half, was free from disease; the rest was totally disorganized and ruined. The tibia was perfectly sound. The whole tumour, including the leg, measured at the most prominent point twenty-four inches in circumference. The fibula, when prepared and dried, lost a great part of its bulk and weight, and now resembles a vegetable production. A model in wax was taken from the preparation, while recent, from which a drawing has been made, as represented in Plate ii. A view of the dried bone is also given in Plate iii.

CASE II.

A man upwards of 60 years of age, in the employment of the Honourable Charles Carroll, of Carrollton, had, for several years, a tumour as large as a child's head, seated on the ribs, about the middle of the left side of the chest. At the request of Mr. Carroll, I examined the tumour in consultation with his attending physician, Dr. Matthews. The patient stated, that, fifteen years before, he had received a kick on the chest from a mule; that soon after a small lump arose upon the injured part, which slowly increased, unattended with much pain, and so little inconvenience as to enable

mour admitted of so much motion as to convey the idea that it was seated on the fibula, not identified with it. A deep-seated, severe, lancinating pain was constantly present, and not only pervaded the whole diseased mass, but extended up the thigh, and rendered locomotion very difficult. The complexion of the patient was of a pale, yellow, cadaverous hue, and his skin studded with small, irregular, tuberculated bumps. The lymphatic glands of the neck were slightly enlarged, and those of the groin of the diseased limb thickened and painful. For several weeks he had laboured under hectic, and was much reduced. Upon inquiry, I ascertained that a hard swelling, the size of a marble, had occupied the middle of the fibula from early infancy; that in July, 1815, while indulging with his companions in vehement exercise in leaping, the patient experienced for the first time an acute and sudden pain in the small lump; with great difficulty he was able to walk home, and then discovered that the lump was larger than usual, and inflamed. The inflammation increased from this period, the tumour augmented slowly, was never entirely free from pain, and in a few months presented the appearances described.

To save the limb was altogether hopeless; amputation was therefore determined on; and I performed the operation without delay. The patient recovered in a few weeks, grew fat and robust, and apparently soon enjoyed excellent health. This continued for eight months without intermission. About this period he made a visit to his friends at Baltimore, and while walking in the streets was suddenly seized with difficulty of breathing, and was so overcome by debility as with difficulty to reach home. From this period he was confined to his bed, suffered from continual cough and hectic, and died in a few weeks with all the symptoms of confirmed phthisis pulmonalis.

Immediately after the amputation, the diseased leg was examined, in presence of the consulting physicians. Upon removing the integuments the muscles were found spread out on the surface of the tumour, and considerably exten-

sue in the vicinity of the part from which the tumour has been removed.

Experience has long ago taught me, that, without precaution of this kind, the patient's chance of recovery will be very much lessened. It appears, too, that the very ample and extended observations of Mr. Cooper have taught him the same lesson, if we may judge from the hint contained in his essay on "*Fungus Exostosis*," a term apparently employed by him to designate osteo sarcoma. "The operation of amputation," says he, "after constitutional means have been employed, and the continuance of these constitutional means after the operation, hold out the chief hope of safety; for amputation without these will do no more than to avert the blow for a season."* As a local remedy for osteo sarcoma, Mr. Cooper was induced to try the effect of cutting off the supply of blood from the tumour by tying the arteries which supplied it. The operation was accordingly performed in two cases, but without success: the current of blood being temporarily diminished, but returning in a short time with its accustomed force. Many of the foregoing remarks will be illustrated by the following cases, which have occurred, at different periods, in my practice.

CASE I.

On the 28th of January, 1816, I was called to Washington, to visit Master W. M. aged sixteen, in consultation with Drs. Shafer and Worthington, two distinguished physicians of that place. I found the right leg of the patient occupied by a large elastic tumour, which extended from the outer ankle along the course of the fibula, to within three inches of the knee. To the touch it was firm and incompressible; but at the same time slightly elastic, somewhat irregular, inflamed on the surface, and divided into two considerable lobes about equal in size. When handled, a distinct crepitation could be perceived near the ankle, and the whole tu-

now, by the destruction of the radius, left naked; and, in fine, that the wrist was irrecoverably ruined. There was no going on with the operation, and no stopping here; he therefore explained to the patient, who had borne this severe and long-protracted dissection with great composure, the necessity of amputating his hand, which he submitted to with equal resignation.*

The above case is calculated to show, in a striking manner, with how little prospect of success we can undertake to remove an osteo sarcoma of any magnitude, involving the whole circumference of a bone; but it still remains a question, whether such a tumour, while in its incipient state, of small size, and seated on one of the bones of the fore-arm or leg, might not be successfully extirpated by sawing through the sound bone above and below its margins. The extremities of the diseased bone, would eventually, perhaps, be filled up or connected by adventitious ligaments, and so much support afterwards given by the sound bone, which would act as a splint, as to render the limb sufficiently useful for most purposes. Much, however, must necessarily depend, in such a case, upon the precise situation of the tumour; if closely connected with a joint, the operation would be attended with risk, and in the end would, perhaps, prove unsuccessful, or give rise to subsequent amputation. It will appear from what has been said, that the treatment of osteo sarcoma must be different in many respects from that of exostosis; that we cannot extirpate the former, with the same success as the latter; and that, in many instances, owing to constitutional disturbance, all our operations will prove unavailable. This remark will even apply to amputation, for it has been decidedly ascertained, that the lungs and other important internal organs, have been attacked, in a very short time after the removal of a limb affected with the disease. To guard against such unpleasant consequences, our only resource is to continue the constitutional treatment recommended, *after the operation*, and to substitute an is-

* Principles of Surgery, vol. iii. p. 64.

its own immediate joints. This tumour, in like manner, moved easily; could be turned upwards and downwards; so that the surgeon never once suspected that the motion was in the radius, or that the tumour was fixed, and made a part of the bone. It seemed moveable, and, doubting, he began to extirpate it, by drawing a long incision round its root, on the side of the ulna: but finding it difficult, with this limited incision, to dissect the tumour, he prolonged the incision, continuing it over the back of the hand to the knuckles, in the direction of the extensor tendons. He then dissected more freely, and continued separating the skin from the tumour, till he came to a thick and solid sac, which seemed to consist of the muscular fibres and aponeurosis of the pronator quadratus muscle. He continued this dissection, separating this thick and solid sac from the interosseous ligament, till he could go no further. Finding that it terminated in a solid and osseous basis, he now plunged interpidly into the heart of the tumour. In cutting into the heart of the tumour, he found that he had opened a very large sac, not firm only, but osseous: but still as he was penetrating into the tumour at one side, he continued still unsuspecting, and persevered in dissecting away what he imagined to be a common tendinous sac, ossified only at certain points: he made thus a large opening into the tumour, felt its cavity full of loose and fatty bodies, pushed his finger under the extensor tendons into the deepest part of the sac, began to hook out the fatty tubercles with his fingers, and at last baling it out with his hand, hooking with his finger, and catching the fatty masses in his palm, he so far emptied the cavity as to be able to search with his fingers in every direction, and then he found, to his utter confusion, the ball of the carpus formed by the scaphoid and lunate bones, at the bottom of the cavity bare. He was now, for the first time, undeceived, and knew what sort of disease he had to contend with; he was now conscious that the radius was diseased; the joint destroyed; the original bone ulcerated. He felt distinctly that the ball of the carpal bones originally opposed to the lower end of the radius, was

to the tumour, may prove useful. When these remedies fail, an operation will become necessary. In many instances, nothing less than amputation will answer, inasmuch as the whole circumference of a bone is involved in the disease. Great care should be taken, therefore, to ascertain the extent and connexions of the tumour, as without just views in this respect much mischief and unnecessary pain and hazard to the patient may result. Mr. John Bell has related the case of a labourer, forty years of age, who had a tumour of enormous size, and of anomalous character, partly cartilaginous and partly solid, occupying two-thirds of the fore-arm from the wrist upwards. The hand was sound; the fingers and wrist could be easily bent; and the tumour seemed to move so freely, that a surgeon of skill and learning was induced to undertake its extirpation, in hopes of saving the hand and joint. "The poor man having willingly assented to any operation, however lingering or painful, which might save his hand, the dissection was carried all round the tumour, and into its central parts, before the surgeons present were undeceived. As the radius turns vertically like a spoke or spindle, it turns without any apparent motion, except in the parts connected with its lower end; the hand turns freely along with the radius, so that we never suspect, till we become acquainted with anatomy, that it is by the spoke-like motions of the radius that the hand moves; it seems moveable in itself, by

quantity of corrosive sublimate may enter into its composition; indeed, there is much reason to believe that the "panacea" of Swaim is the *Mepurative Pittan* of the French writers, the following formula of which is given by *Figarois*.

R. Scène mondiale,—trois onces.

Sarsaparilla,—six onces.

Bois de guaiac rapé mis dans un nouet.

Sassafras,

Racine d'esquine,

Iris de Florence,

Antimoine crud.

Anis Vert,

Crème de tartre,

Artisiolehe longue et ronde,

Jalap concassé,

Polypode de chene,—une once et demie de chacune

Calliscen,* and some other writers, that osteo sarcoma, is, in reality, a cancerous affection of the bony tissue, and as such, may give rise to all the consequences which are liable to result from a similar disease of the soft parts. It does not follow, however, admitting this view of the subject to be correct, that the disease is always so deeply engrafted upon the constitution, as necessarily to give rise, after extirpation or amputation, to a similar affection of the pulmonary system, or any other of the vital organs. On the contrary, from the favourable result of several operations for the removal of osteo sarcoma, there is reason to believe, that when resorted to in time, the disease may be as successfully extirpated as cancer of the soft parts, but like that disease, if permitted to remain until the system is extensively contaminated, may prove equally fatal. How far scrophula can be considered as giving rise to, or as connected with osteo sarcoma, as it is known to be with some other affections of the bones, remains yet to be determined.

Treatment.—Before an osteo sarcomatous tumour has attained a large size, it may sometimes be removed by local and constitutional remedies, without the aid of an operation. Leeches applied to the part itself, or its vicinity, will be found very useful. Blisters, also, often repeated, and kept up by savin cerate, will prove still more beneficial. As a constitutional remedy, Mr. Cooper† has lately extolled the exhibition of oxymercure, combined with the compound decoction of sarsaparilla, a medicine which has long been used in France, and in this country, with the happiest effects, in the treatment of various diseases, especially chronic ulcerations, and tumours of different kinds.† Low diet, conjoined with purgatives, must likewise be had recourse to, and perhaps moderate pressure, steadily applied

* *Systema Chirurgiæ Hæliærnæ*, vol. iii. p. 204.

† *Surgical Essays*, p. 183.

† There can be very little doubt that the virtue of the medicine prepared and sold by Mr. Swain of this city, and which unquestionably has proved extremely efficacious in several chronic cases, depends chiefly upon the sarsaparilla which it contains, or which is exhibited with it. It is probable, also, that a small

patient herself, had similar tumours on both tibiae, on the left humerus, and on the middle of the left thigh. All remained stationary, and were of small size, except the one on the thigh, which gradually increased, became particularly large and painful after her marriage, and finally increased to such an extent, as to weigh twenty-one pounds, and render amputation necessary. Upon dissection, all the characters of osteo sarcoma were distinctly marked. In many instances, this disease has been decidedly traced to a blow, to a jump from a height, to fracture, and other external injury; but there is great reason to believe, in most instances, that it is connected with some constitutional affection, since we meet with many cases in which, after removal of the tumour or amputation of a limb, other parts of the body have been attacked in a similar manner, or else the patient has been carried off in a short time by some disturbance of the vital organs. In several cases presented to my notice, patients have undergone operations for osteo sarcoma, and have so far recovered in a short time, as apparently to enjoy excellent health, when suddenly their strength has declined, hectic fever has supervened, a pain in the breast, with cough and purulent expectoration, has taken place, and death has soon followed from phthisis pulmonalis. A case is recorded by Dr. Baillic, in his *Morbid Anatomy*, of a person who had a very large bony tumour formed around one of his knees; this was removed at St. George Hospital by Mr. Walker, by amputation of the limb; very soon after, a difficulty of breathing began, occasioned by part of the lungs being converted into bone, and by a very considerable deposition of bony matter on the inside of several of the ribs, which caused the patient's death.* These circumstances would seem to favour the idea suggested by Boyer,† Richerand,‡

* Wilson's Lectures on the bones and joints, p. 274.

† *Maladies Chirurgicales*, tom. iii. p. 587.

‡ *Nosographie Chirurgicale*, tom. iii. p. 121.

him to attend constantly to his occupation—that of a gardener. For several months, however, before I saw him, the pain, together with the magnitude of the tumour, prevented him from engaging in any business, and rendered him anxious to obtain relief.

To the touch, the tumour was firm and unyielding, except at particular spots, where it was soft, and seemed to contain a fluid. The whole mass could be readily moved for some distance under the skin, so as to convey the idea of a sarcomatous excrescence, loosely attached to the surface of the ribs. Under this impression it was determined that it should be removed. On the first of March, 1817, I commenced the operation in presence of Drs. Matthews, Denny, and Richardson, by dividing the integuments and muscles on the chest, so as to expose the tumour completely to view. This I found covered with a strong pearl-coloured cyst, in attempting to penetrate which, the knife encountered considerable resistance from spicula of bone. The nature of the disease now appeared evident, and I determined forthwith, to penetrate the base of the tumour, and elevate it gradually from the surface of the ribs. In proceeding, however, in the dissection, I soon discovered that all the ribs at the margins of the tumour were annihilated by caries, or else expanded into a spongy, porous mass, and in fact identified with the tumour itself. Being satisfied of this fact, and well assured that the ribs beneath the swelling were extinguished, I resolved to cut through each, at the points connected with the circumference of the tumour. This I accomplished, though with considerable difficulty, by means of a strong scalpel, and at last succeeded in removing the whole diseased mass from the surface of the pleura—leaving the cavity of the chest separated from the tumour only by the intervention of that membrane, and exhibiting a circular opening among the ribs, upwards of six inches in diameter. Little or no hemorrhage took place, but the patient appeared to suffer extremely during the extensive, and necessarily protracted dissection. The integu-

ments and muscles were replaced in their former position, and secured by adhesive straps and bandages.

Upon examination of the morbid structure, after its removal, all the characters of *osteosarcoma* were distinctly marked. The whole bony tissue was converted into cavernous cells, which were loaded with a mixture of fleshy and steatomatous matter. The bony ridges or spicula traversing the mass in various directions, were less firm than usual, and rendered the tumour so weak and vacillating, as to afford that mobility so conspicuous before the operation.

As the patient resided at the Manor, a considerable distance from Baltimore, where I then lived, I did not see him after the operation; I was afterwards informed, however, by Dr. Matthews, that the wound healed in a short time, and that for several months his general health was better than it had been for years before, when suddenly a cough and dyspnœa appeared, which soon terminated in phthisis pulmonalis, and quickly destroyed him.

CASE III.

D. M. a sea-faring gentleman, consulted me in 1818, respecting a large, irregular, incompressible tumour, seated upon the ribs and spinous processes of the vertebræ, and extending from the neck quite down to the lower borders of the scapulæ. The tumour had been growing several months, and originated from a blow upon the back of the neck. It was of an oblong shape, and lobulated, and so large as to be very conspicuous beneath the patient's clothes. It had never been painful, and could be rudely handled without any unpleasant sensation being experienced. Completely identified with the spine and ribs, its base was immovable. The surface was covered with numerous veins slightly varicose and tortuous.

As the character of the tumour was somewhat anomalous, I requested the patient to show it to some other practitioners; most of whom decided that it was sarcomatous, From its stony hardness, want of sensibility, and irregu-

lar growth, I myself, believed it to be composed chiefly, if not entirely, of bony particles. Under this impression I advised its removal, and provided such instruments as were best calculated to overcome the difficulties necessarily to be encountered. On the 22d of October, the operation was performed in presence of Drs. Davidge, Owen, and several medical students. I made a longitudinal incision over the most prominent part of the tumour, commencing above its margin at the neck, and extending down below its base on the dorsal vertebræ. The skin being dissected up, the cucularis muscle, on each side, was exposed fairly to view; these I also separated, at their connexion with the spinous processes, and folded back so as to expose the diseased mass; which now appeared completely enveloped in a dense, shining, fibrous membrane, elevated in numerous places, by rounded bumps or tubercles, adhering to each other and resembling a cluster of grapes. I next attempted, with a strong scalpel, to remove the tumour itself; so firm, however, was its texture, that the edge of the knife was broken in every effort to penetrate it. The amputating saw was then resorted to, but finding it difficult, without wounding the surrounding soft parts, to apply it horizontally, I determined, at the suggestion of Dr. Davidge, to divide the tumour into two equal parts, by making a cut perpendicular to its surface, as far as the spinous processes. By this ingenious expedient, I was able, with a chisel placed in the fissure made by the saw, to force off one half of the tumour. The other half was then readily removed by applying the saw horizontally to its base. To smooth off the irregularities that remained, and to detach several insulated portions of the tumour, situated about the ribs and vertebræ, I made free use of the bone nippers, or cutting forceps, contained in the amputating case, and found them so extremely serviceable, that I have since employed them repeatedly in the extirpation of different bony excrescences. The patient bore the operation with great composure, although it was evident he suffered immensely, both from the extensive dissection of the soft parts, and from the un-

avoidable laceration and destruction of the tumour itself. This was still further evinced from the circulation being so weak at the wrist, immediately after the operation, as scarcely to be perceptible ; nor was reaction completely established for several days. Indeed, so great was the shock sustained by the nervous system, that for several days I was apprehensive of tetanus. Fortunately, however, the wound soon suppurated, and in a few weeks was so filled up, as to enable the patient to leave the city, and retire among his friends to Annapolis, where, by fresh air, and the kind and skilful attention of Dr. Ridgely, he was soon restored to perfect health. Although three years have now elapsed, I have never heard of the return of the complaint, nor of any constitutional indisposition.

The structure of the tumour, when dissected, differed in some respects from that of common osteo sarcoma. The rounded tubercles, which I have already described as occupying the surface, were also distributed throughout the substance of the tumour, and in fact composed its bulk. Where the superficies of these tubercles touched each other, irregular bony cavities were necessarily left ; these were filled by a fatty matter. The tubercles themselves appeared to consist of bony spicula, incorporated with considerable quantities of a substance resembling cartilage. When forcibly separated from each other, torn portions or shreds of a very delicate membrane could be distinctly seen. This membrane served to cover each tubercle, and to connect it closely with the bony interstices. The whole tumour weighed five pounds and a quarter.

CASE IV.

—— Hilton, aged thirty-five, a cotton weaver, consulted me during the month of May last, at the request of Dr. Physick, concerning a tumour situated upon the right cheek and upper jaw. At first sight, it appeared like the common fungus of the antrum maxillare ; it was firmer to the touch, however, and less painful than that disease, as usually met with. The tumour could be felt, by a finger

introduced into the mouth, closely adhering to the gums, above all the teeth of the right side of the face, and extending upwards, so as to involve the cheek bone and part of the nose. According to the patient's account, the disease first appeared, five months before, in the form of a small lump seated in the gum, above the canine tooth, and gradually increased, without much pain, until it attained the size of her fist. Her teeth and gums had been previously sound, and as she was of vigorous constitution, and enjoyed excellent health, she was at a loss to account for the formation of the tumour.

It was evident that the disease would soon be beyond the reach of surgery, if not speedily arrested by an operation; to this she willingly consented, and on the third of June I performed it, in presence of several practitioners and students. The lining membrane of the cheek being necessarily connected with the tumour, and concealing its limits, was first extensively dissected. An attempt was then made to separate with a curved knife the tumour itself from the gums and alveolar processes; so completely, however, was it identified with the bone of the upper jaw, that only small portions could be detached at a time by the knife. Under these circumstances I determined immediately to knock away with the chisel and hammer, the whole alveolar processes and teeth connected with the diseased mass. With the cutting forceps I then cleared away, with great facility, the fragments of bone, and vacillating portions of the tumour, until I reached the antrum maxillare. This I found stuffed with a tumour of softer consistence than the one seated upon the face; but connected with it by a narrow neck. By means of curved knives, and a sort of raspatory, the whole antrum was soon cleared, and the operation finished. As may be supposed, the patient suffered exceedingly; but the operation was not for a moment interrupted by hemorrhage; indeed the flow of blood was so inconsiderable as to astonish every one present; no artery was taken up; nor was it necessary to use

the sponge more than two or three times.* The wound healed completely in four or five weeks, and the patient returned to her home in the country. The tumour, when examined after the operation, presented appearances corresponding so exactly with those already described, in the other cases, that it is unnecessary to detail them.

For some time there was no evidence of a return of the complaint; but as soon as her general health improved, and she became stout, the tumour of the face appeared, and gradually increased, until it became nearly as large as before the operation. Still anxious to get rid of her disease, and undismayed by the severe trials already encountered, she willingly consented to submit to any measure which might be proposed for her relief. In consultation, it was determined by Dr. Physick and myself, that another operation should be tried. This I performed on the 10th of September; but instead of pursuing the plan adopted on the former occasion, a transverse incision, three inches long, was made through the integuments and muscles of the cheek, so as to expose the limits of the tumour, which was then dissected, by curved knives, from the surface of the upper

* It has lately become fashionable among British surgeons to tie up the *carotid*, and other large arteries, upon the most trivial occasions; with a view of diverting the current of blood during and after an operation. The ill success, however, which has hitherto attended the great majority of such exploits, may be considered a pretty fair comment upon the practice. The fact is, that the carotid may be tied with much greater facility than nine-tenths of the arteries of the body. Its exposed situation, and strong pulsation, would lead the merest tyro in surgery to its proper course. The extirpation of a common fungus or polypus of the antrum maxillare is by no means a difficult operation to the surgeon, however severe or formidable it may be to the patient; and we really think that the danger, if it be considerable, of removing such a tumour, does not consist in the simple operation itself, as it ought to be performed, but in the additional and unnecessary irritation communicated by the ligature of the carotid, which of itself, and without any laceration of the face, would often be sufficient to produce death. The patients, if aware of their danger, might say to their surgeons, in the language of the frogs, "This may be very fine fun to you, gentlemen, but it is death to us." Dr. Physick, whose reputation is quite as high as that of any other surgeon, and whose patients have been, perhaps, as numerous, has never taken up the carotid artery in his life; for a very simple and obvious reason,—that he never found it necessary.

jaw. The next step of the operation was to remove the disease from the antrum maxillare itself. To accomplish this, a raspatory and small chisel, fixed on the handle of a knife, were chiefly employed. No hemorrhage took place during the operation, except from the division of the arteries of the cheek. The texture of the tumour was somewhat softer than it proved to be after the first operation, but was still composed chiefly of bone and cartilage, mixed with fleshy and steatomatous matter. The incision through the cheek was made with a view of facilitating both the removal of the tumour, and dressing of the cavity of the antrum; the latter was especially desirable, since an open wound, directly communicating with the cavity, would enable me to repress prolific granulations, and to remove any portions of disease as soon as generated. The wound is now dressed every day with dry lint, which serves the purpose of keeping it open, and at the same time prevents the fungus from sprouting. Should the disease return, I propose to attack it with the caustic composed of equal parts of white arsenic and sulphur; a remedy extolled by Mr. Home in the removal of cancerous tumours, and which I have repeatedly found efficacious in several diseases requiring for their cure very powerful caustic applications.

I have had occasion, at different times, to treat some other cases of osteo sarcoma; but as the particulars do not differ essentially from those already stated, it would be superfluous to relate them. I may refer, however, to the case of osteo sarcoma of the lower jaw, the outline of which is given in my essay on exostosis.*

Many isolated cases of osteo sarcoma, are scattered through the works of different writers. Sandifort† gives the history of a woman, forty-four years of age, who suffered for many years, and finally died, from a tumour composed of fungous cartilage and bone, which commenced in

* See vol. ii. p. 145, of this Journal.

† *Museum Anatomicum*, vol. i. p. 161. etiam vol. ii. tab. xxx. xxxi. xxxii. xxxiii.

the palate, gradually filled the mouth, extended to the left cheek and temple, destroyed vision, and in the end involved nearly the whole skull; producing the most hideous deformity. Numerous physicians and surgeons were consulted in the commencement of the disease; but none were willing to operate.

In the Heaviside Museum* is contained a skull, from the right antrum of which, projects an osteo sarcomatous tumour of enormous size. The patient from whom it was taken, a woman thirty years of age, first perceived a small soft swelling, in the right nostril, about the size of the end of the finger. Under the impression that the disease was a polypus, her surgeons, at different times, partially extracted it; but the operations only served to aggravate it, and at the end of five years it attained so large a size, as to close the right eye, and force the teeth from their natural position, so as to make them stand at right angles with the alveolar circle. The whole tumour projected from the face, four inches beyond the natural line of the bone, and was exceedingly vascular; so much so, that the patient was at last destroyed by spontaneous hemorrhage.†

Under the title of "*fungous exostosis*," Mr. Cooper‡ has given the history of a tumour very analogous to osteo sarcoma—if not the genuine disease. It was seated on the forehead, was very large, and had been growing several years. By the advice of Mr. Cooper, the patient submitted to an operation. The integuments being turned aside, and the tumour removed by a metacarpal saw, was found to consist of a substance softer than cartilage, mixed with numerous slender spicula of bone. On the fourth day after the operation, the patient became comatose, and on the sixth died. Upon dissection, both tables of the skull proved to be diseased, as well as the dura mater itself. The inflammation, succeeding the operation, extended to the membranes of the brain, and produced death.

* See Fox on the Teeth, vol. ii. plate 6.

† See Howship's Practical Observations in Surgery and Morbid Anatomy, p. 22.

‡ Surgical Essays, part 1st. p. 214.

Vigarous* relates the case of a patient, from the middle of whose palatine arch, he removed a large osteo steatomatous tumour. The mouth was kept open by a wooden wedge, and the diseased mass removed by the bistoury and curved scissors. Speech and deglutition, which were very much interrupted by the disease, were soon restored, and the patient entirely recovered.

The lower jaw seems to be more subject to osteo sarcoma, than any other bone ; at least, numerous cases of the disease thus situated, have been related. Scultetus† extirpated with success, a monstrous tumour of the kind, which weighed one pound fourteen ounces, grew from the base of the jaw, covered the greater part of the face, and extended down the neck. Bordenave‡ has recorded two cases of osteo sarcoma of the lower jaw, one in a patient aged twenty, the other twelve years. The first originated from diseased teeth, and in four years acquired so considerable a bulk as to demand an operation. It was not extirpated, however, but perforated in two places, so as to give issue to a considerable collection of matter. The patient soon after died, and upon dissection, the greater part of the jaw was found converted into a lardaceous substance, mixed with bone. In the second case, the disease proceeded from a fracture of the chin ; the tumour increased during twelve or fourteen years, and finally became so large, and produced so much irritation, as to terminate in death. Ribes§ has republished an interesting case, recorded by Lisfranc, of a large and malignant tumour (having all the characters of osteo sarcoma) which occupied the chin, and was removed by Dupuytren, after several unsuccessful attempts by other surgeons. So extensive was the disease, that it seemed necessary to cut through the jaw itself, on each side of the

* *Œuvres de Chirurgie Pratique ; civile et militaire de Barthélemy Vigarous*, p. 538.

† *Sculteti opera Chirurgica*, tom. ii. p. 671.

‡ *Memoires de L'Academie Royale de Chirurgie*, tom. xiv. p. 146.

§ *Dictionnaire des Sciences Medicales*, tom. xxix. p. 430.

tumour, and insulate it. This was accordingly done, and the extremities of the bone were afterwards brought together and united, so as to constitute an artificial chin. The patient recovered in thirty days. The morbid mass weighed about a pound and a half. A woman about fifty years of age, had a large tumour on the inferior part of the right side of the face, for which she consulted M. Chausier. The disease had advanced, however, too far to admit of remedy, and in a short time she died. Upon dissection it was found, that the tumour was attached both to the lower jaw itself, and to the coronoid and condyloid processes, was filled with bony spicula, mixed with a fungous mass, and contained in several parts different fluids, some like the white of an egg, and others of thicker consistence, resembling lees of wine, and purulent matter.* The histories of three cases of osteo sarcoma of the lower jaw, have been given by Mr. Cooper.† The first occurred in a woman thirty-two years of age, and commenced in the form of a fungus, which sprouted from the alveolar cavities, and displaced the teeth. A tumour then formed, and continued to increase for eight years; it occupied the symphysis of the jaw, became very prominent, and burst through the skin. As the surrounding parts were apparently healthy, Mr. Cooper intended to extirpate the disease with part of the jaw.—In the second case, an enormous tumour occupied the chin, and measured from side to side five inches and a half, and in circumference sixteen inches. Finally, its magnitude became so considerable as to force the epiglottis upon the rima glottidis, and produce death. The patient was a female, and only twelve years of age, when the disease commenced. The tumour was composed of cartilage, and bony spicula, and upon the surface consisted principally of a white, fibrous mass, resembling the elastic ligaments of the body. The third case was that of a female nineteen years of age. From the angle of the jaw to the

* Dictionnaire des Sciences, &c. tom. 29. p. 435.

† Surgical Essays, p. 186, &c.

symphysis, there was a large swelling, smooth and regular on the surface, and firm and elastic to the touch. It had been growing between three and four years, and proceeded from a decayed tooth, "the fangs of which projected into the cartilage, which was effused within the bony cavity, and which, instead of producing suppuration and ulceration, kept up a degree of irritation that did not pass beyond the stage of adhesive inflammation, and a cartilaginous deposit took place in the first instance, to which succeeded an ossific effusion."* This tumour was removed by the knife, and the patient recovered in a short time.

Osteo sarcomatous tumours of enormous size, have been found occasionally upon the shoulder. An interesting case of the kind, has been related by Mr. John Bell.† The patient, a tall, athletic young man, received a contusion upon the arm and shoulder, while engaged in violent exercise. Inflammation and swelling supervened, but soon subsided, and the patient imagined himself well. At the end of a month from the accident, the pain returned, the arm and shoulder gradually enlarged, and the limb became so weak that he could not raise it to his head; still he could lift perpendicularly a very heavy weight. As the tumour increased, which it did rapidly, the pain became so intolerable, that "his cries could be heard miles off." At the end of nine months, the whole swelling greatly exceeded in size, the patient's body. "When I went to receive this poor lad," says Mr. Bell, "I found him lying deep in the hold of a small sloop, in which he had been transported from Inverness, laid on a coarse matress, and bolstered up against the shelving side of the vessel; and when the clothes were lifted, I solemnly declare, that I hardly knew, at first, what it was that I saw; which was the tumour, and which his body, or how to connect in imagination, the one with the other. He lay in an inclined and irregular posture, extremely languid, and hardly able to articulate; his head inclining to one side, the tumour, when first exposed by

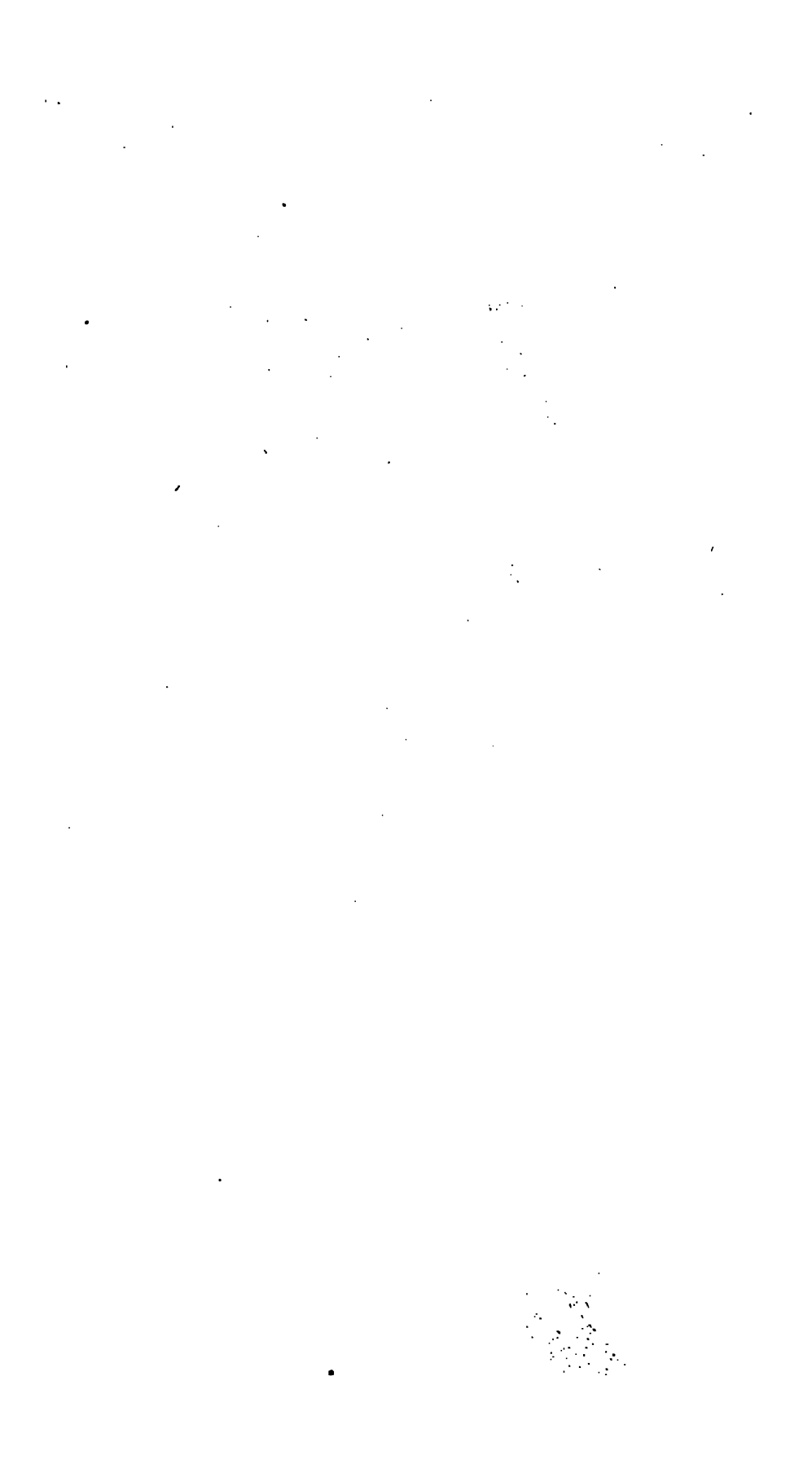
* Surg. Essays, p. 192.

† Principles of Surgery, vol. iii. p. 82.

lifting the clothes, might be mistaken for his body; in respect of size, it was of a suitable bulk, and when the lean, yellow, and emaciated thorax was next exposed, the tumour seemed so much to exceed it in size, with a shining surface and brilliant colour, that, at first, I was more confounded than shocked, so impossible was it, in the first moments, to consider of it as a tumour, or to see its relation to the arm. The forearm was dwindled and shrunk, and projected from the tumour at a strange and unnatural distance from the shoulder; the veins were swelled like those of a horse's belly; large fungous tumours, as big as oranges, projected in a group from the outside of the arm, at the place where, about two months before, a large abscess had burst; and such was the fœtor of the matter running from under these fungi, and the languor of this poor, emaciated creature, that I had no thought for the present but how to get him conveyed alive to town."

Mr. Bell proposed in this case to secure the subclavian artery by ligature, to saw through the outer end of the clavicle, and then turn off the scapula, and separate both it and the whole arm from the body; the patient, however, was sunk too low to sustain so formidable an operation, and died soon after from hemorrhage. Upon dissection, the diseased mass consisted of a substance like callus, mixed with a large proportion of solid bone, and every where contained cells, which were filled with a matter resembling thick cheese. The shoulder bone was spongy and ulcerated, and could be traced through the whole tumour; indeed, all the bones forming the shoulder joint were extensively involved in the disease. A case in some respects similar to the one just related, is recorded by Boyer.* The patient, a priest, aged forty-seven, fell, while running in the street, and received a severe contusion on the right shoulder. Some time after, a swelling, about the size of an egg, appeared near the injured part, and gradually increased, until the whole shoulder, armpit, and greater part of the arm, be-

* Boyer on the Diseases of the Bones, vol. i. p. 368.



Osteo Sarcoma.

Case of W. M.





Plate 3.



F. Kearny. Sc.

came involved. The pain was intolerable, but its violence could sometimes be assuaged by opium and emollient applications. No permanent relief, however, was procured, and the patient died in a few months after the accident. In circumference the tumour measured *thirty-six inches*, and in diameter *sixteen*. Its weight, with that of the arm, was thirty-three pounds. The opposite arm weighed six pounds, so that the tumour itself must have equalled twenty-seven pounds. When dissected, the appearances usually presented in osteo sarcoma were discovered.

Many other examples of osteo sarcoma, occupying different situations, might be adduced; it may be sufficient, however, merely to refer to a few cases. Leeson* has given an account of a large semi-osseous tumour, seated on the ribs of the right side, and resembling in some respects the case of Mr. Carrol's man.† Three cases of osteo sarcoma, of the radius, knee, and leg, have been furnished by Cooper.‡ Boyer,§ Houstet,|| and Daubenton,¶ have each described very large osteo sarcomatous tumours of the thigh; Petit,** Bontè,†† and Vigarous‡‡ have furnished similar cases of the leg.

In a future essay, I shall make some observations on *Spina Ventosa*.

* Medical and Physical Journal, vol. x. p. 162, and vol. xii. p. 465.

† See p. 96 of the present Journal.

‡ Surg. Essays, p. 184, p. 195, p. 185.

§ Boyer's Treatise on Surgical Diseases, vol. ii. p. 174.

|| Memoires de l'Academie, tom. viii. p. 9.

¶ Cabinet du Roi.

** Traite des Maladies des Os. tom. ii. p. 198.

†† Journal de Medicine, tom. xii.

‡‡ Œuvres Chirurgicales, p. 548.

ART. VII. *Observations on the Character and Treatment of the Spotted Fever, as it appeared in the lower Northern Neck of Virginia, and the adjacent country, in the Fall and Winter of 1814, and 15. Communicated in a letter to the Editor, By R. MURPHY, M. D. Read before the Philadelphia Academy of Medicine.*

DEAR SIR,

I AM equally surprised, with yourself, that nothing, from the southern parts of the Union, beyond the meagre accounts which appeared in the daily prints, has ever been given to the public, relative to the character and treatment of the terrible epidemic which overspread the country a few years back.—The object of this communication is to supply, in some measure, this unaccountable deficiency.

It has been beautifully, and philosophically remarked, that “every blessing in this life, has its alloy of evil.” This wide and general observation, is no less applicable to life itself, than to the various enjoyments with which it abounds. Throughout every stage of our earthly pilgrimage—from the opening bud of infancy, to the “sear, the yellow leaf” of age, we are exposed to a multitude of painful and destructive diseases. Regarding the frail tenure of existence, the sacred writer exclaims, “in the midst of life, we are in death,” and his language is by no means exaggerated: death is constantly at every one’s door, and often steps in, when he is least expected.

Under this prolific head of besetting calamities, *epidemics* have an unquestionable claim to the highest rank, and the most serious and inquisitive consideration. Scarcely a year passes away, without a visit from them in one shape or another, and wherever they prevail, all other diseases are forced to bow before their sceptre, and to enlist under the banner of their frightful march. They stand peculiarly out in the fore-ground of social afflictions, as they never fail to take advantage of times of great suffering and distress. Hence, they are almost indissolubly associated with seasons of want and scarcity. They seem to scent afar off, these

unhappy conditions of society, and those who are already most oppressed, are sure to be the selected victims of their merciless rapacity.

With regard to ordinary diseases, we stand comparatively on sure and undebateable ground. Their causes are much more obvious, their constitution more simple and unvarying, and their treatment far better understood. Epidemics, for the most part, attack by surprise, and in the dark. Frequently, not the slightest intimation of their approach is given to the fated district they intend to invade—subtle and *Protean* in their character, it is at all times difficult to develop and pursue their capricious determinations, and the treatment, of course, is apt to be perplexed, doubtful, and involved. The extent of desolation and anguish which too often mark their progress, is indescribably appalling. They sweep, like an angry tornado, over the face of society, laying waste, and destroying the brightest prospects of hope, and leaving in ruin, the most precious and warmest-cherished affections of the soul. Gloom and despondency every where prevail, and years are required to bind up the wounds, and heal the broken hearts of the afflicted survivors.

If such be a faithful sketch of the character, and a true picture of the consequences incident to epidemical distempers, it is natural to conclude, that they must have attracted the most anxious attention, at a very early period. Accordingly, we find from the records of our art, that physicians have been zealously employed, from the remotest times, in diligent efforts, to unveil their mysterious origin, and to stay their dreadful malignity. Much as these illustrious benefactors of the human race have accomplished—crowned with success, as their efforts confessedly have been, in many directions, much still remains to be achieved—much “*terra incognita*” to explore—much darkness of nature to dispel—much light of art to shed abroad.

Whether we shall ever succeed in bringing into view the grand secret of their formative causes, is a problem, the solution of which I cannot help regarding with no little des-

pondency. Certain it is, that no satisfactory conclusions on this head, have ever been offered to the world. The doctrines of *specific contagion*, and *aerial depravation*, though long in existence, have not yet received the support of that clear and definitive testimony, which the rigour of philosophy demands, and which should alone recommend them to unqualified adoption. All that we can say of the *former* is, that it is supported by analogy, and of the latter, that some such condition, however inscrutable, does seem to be an indispensable link in the chain of causation. Here we must rest—for we have no cognizable means in regard to either, of arriving at truth. Our senses afford us no aid, and our thermometers, barometers, and electrical machines, are of no manner of service. Situated as we are, it would be better, perhaps, frankly to confess our ignorance, than to run the risk of imposing an error upon the world, however plausible, and ingenious. In the adoption of opinions, which are calculated to awaken a high degree of interest, the mind can never be too wary and circumspect. The difficulty of parting with delusions which have been fondly cherished, is always great, and constitutes one of the most serious obstacles to the development and recognition of truth.

Causation is one of those branches of inquiry, which, in more departments of knowledge than one, has occasioned a profuse and unavailing expenditure of intellectual ingenuity and vigour. Such is the irrepressible ambition, and insatiable curiosity of the human mind, that it is never content to remain in the dark, nor willing to acknowledge, that any investigation is beyond the power of its reach. When anything is set before us, whether it be an evil or a blessing, neither satisfied to suffer in ignorance, nor content to enjoy blindly, we instantly set to work to find out the cause. Even after the efficient cause is discovered, the mind, still on the wing, continues its restless flights “towards those lofty walls and brazen gates,” which shut in for ever, the great arcana of the first moving and designing power.

With regard to the question now under review, it seems

next to impossible, that we should ever land in clear and satisfactory conclusions. We have no data to start from—no platform upon which to erect the engines of inquiry; every thing turns upon mere surmise and speculative conjecture. Sydenham, to whose gifted mind and admirable observations we owe so much, did indeed leave an explanation behind him: But, like the inauspicious flame which illumined the abode of Satan, it only serves to render the darkness more distinctly visible. “So far shalt thou go and no farther,” is the hand-writing upon the wall of numerous sources of inquiry, and it is in vain to resist its lofty and authoritative import.

No less obscurity seems to overshadow another point of investigation, still more important: I mean the true character of Fever, and more especially of that class to which the subject of the present essay belongs. It would appear, that we are destined never to arrive at a just system of pathology. Theories in medicine, like the race of Banquo, pass away in rapid and endless succession. At one time, the system of depraved humours swayed the sceptre of our art. Diseased action was then the infallible result of some peccant humour lodged in the system, and concoction was the unhandy process by which alone it could be prepared for expulsion. To this now ludicrous and ill-shapen doctrine, (supported, however, by some of the best and wisest names that adorn the profession) the nicely balanced system of Cullen succeeded. The reign of an all-sinning humour was now at an end, and morbid impressions, creating either too much action, or lowering too far the energies of the system, and disposing to a putrescent condition of its fluids, mounted the throne. The dread of debility, or rather putridity, may be regarded as the boding principle in the creed of this school, and upon which their curative indications were mainly founded. With regard to Typhus fever, it was maintained, that it subsisted from the beginning, in a state of debility, and highly stimulating nostrums were deemed necessary to meet its onset. This was, for some time, pretty generally received as an axiom in practice. But the

glory of this world is ever passing away : the foundations of the Cullenian system have been from time to time vigorously assailed, and at present the pathological department of our art, seems to be undergoing another thorough revolution.—Too much aboriginal action in a state of oppression, seems at present, to be the fashionable creed,* and in lieu of the cordial and stimulant mixtures once so earnestly enjoined, and so generally adopted, early and *rigorous depletion* is now the commended resort in practice. The lancet, so long regarded with a fearful and suspicious eye, is triumphantly emerging from the tomb of the immortal Sangrado, and taking its stand at the head of the curative phalanx—cathartics, emetics, &c. following in due order.

Though I am disposed to think, that this change of dynasty, if I may use the expression, will lead, upon the whole, to an improvement in our views and treatment of fever, I am afraid that matters will be again carried too far. Ever since the memorable catastrophe of Phæton, the middle way with the sons of Apollo has been difficult to preserve. Disdaining it in the fulness of unbridled ambition, and with the prospect of an immortal name, brightly pictured to the imagination, the daring aspirants of our art, have been constantly tumbling from some giddy height of visionary innovation. While every other science, under the benign influence of the Newtonian philosophy, is rapidly disengaging itself from the perplexities and confusion of rash and gratuitous hypothesis,—while the authority of Nature is spreading far and wide in every other direction, the province of Medicine still continues refractory and rebellious,—no where else can there be found so prescient and fatal a propensity to premature generalization. The privileges of inductive reasoning are indeed stoutly demanded, as equally applicable to its principles, but they are but little employed. Here a few facts, loosely connected by analogy, are grouped together, and wrought into a system of infallible institutes. In another quarter, the drudgery of

* Vide Edinburg. Review, No. lxii.

hunting after facts is laid aside altogether, and the airy creations of imagination substituted in their room. It is inconceivable to what an extent this spirit of abortive simplification has been carried. In our own day, we have witnessed a memorable instance of the absurdities into which the mind can be betrayed, when it yields itself up to its blinding and besotting influence. Fifty years hence, it will scarcely be credited, that so baseless a creed as unitarianism in medicine, could have been entertained for a moment, by a mind of sound and vigorous endowment. It is far from my intention, to lean hard against the memory of the illustrious name, which gave birth to this singular illusion: his mind was eminently gifted, and he has left many redeeming obligations to atone for the evils which his system was calculated to visit upon the profession. There is evidently, however, no better prospect, that diseases will ever be brought under a unity of character and treatment, than of the eventual discovery of the philosopher's stone. Their phenomena must necessarily vary to an indefinite extent. Independently of the well known influence of climate, constitutional idiosyncrasy, habit, and an endless train of local and temporary incidents, what a wide field of modifying power does the mind present: what a cordial is hope—what a stimulant is joy—how depressing is fear, grief, and the rest of the sedative passions and emotions. The physician who approaches the bed-side of his patient, with nothing but the line and level of preconceived opinions, must ever be lamentably deceived in the issue of his practice. Symptoms are the leading points, and to these will a wise practitioner direct his principal attention, and adapt his curative proceedings.

It must not be inferred, from what has been said, that I am undistinguishingly hostile to the formation of medical theory. Although I am well persuaded that experience here cannot be applied in the same fixed and unerring sense, as in the different branches of the Newtonian philosophy, still it may be employed in a high and beneficial degree. Without it, the genuine lights which are struck out at inter-

vals could not be preserved or transmitted to a future age. System and combination are as essential to the interests of science, as to the happiness and welfare of society. All I would wish to inculcate is the leading importance of directing an habitual attention to the phenomena of every individual case. To be wise, a physician must be humble. He must not indulge the suggestions of vanity, and he must often forego the seductive invitations of genius. "To the law and to the testimony" of nature, he should piously and resolutely give his attention. When he has accomplished this, he may rest assured that his mind is in a far better state of philosophical discipline, and useful preparation, than if it were suffered to revel amid the verdure and bloom of the brightest and most dazzling imaginations.

These remarks, it is presumed, will not be considered an impertinent introduction to the history of a disease, whose capricious and versatile character furnishes so striking an illustration of the opinions which I have advanced, and so strongly sanctions the conduct which I have ventured to recommend. From the accounts which have been given of its prevalence in different quarters, it appears that it was wont to assume every variety of general action, and to personate every local disorder in the catalogue of nosology.

If it had been sent into the world on purpose to confound the dogmas of system-mongers, and to demonstrate the futility of *à priori* reasoning, it would not have better answered the purpose. Like the storiedameleon, while physicians were gravely debating its complexion in one quarter, it had assumed quite a different hue in another.

It was in the fall and winter of 1814 and 1815, that this new and terrible scourge visited the Northern Neck of Virginia, and the adjacent country. Exposed on all sides to the incursions of the enemy during the late war, this tract of country was incessantly harassed by the irregular and fatiguing calls of militia duty. I attended the regiment from Westmoreland county, during the latter part of their service, in quality of surgeon's mate. As early as the month of September, while we were lying near the *White House*, on

the Potomac, several cases of a highly malignant fever made their appearance. In one or two of these, the throat was the chief seat of attack: the rest were of a pneumonic character. The same typhoid appearances, however, were manifested by all. Lying in open tents, with nothing but a little straw for their beds, most of these unfortunate subjects were soon hurried to their graves. In November, after the troops were disbanded, and had returned to their homes, the disease became general, and proved horribly destructive in its sweep.

In consequence of the first cases having appeared in camp, the origin of the disease was pretty generally ascribed to its influence, and its propagation, of course, was imputed to contagion.

From what I have already said relative to the darkness which rests upon the remote causes of epidemics, you may readily infer that I am no wise disposed to throw myself into the lists of controversy. I would simply remark, that the spread of disease may be much more readily accounted for upon the assumption of an atmospherical, than a contagious influence. It appears to be utterly impossible, in a thinly settled country like this, to reconcile its rapid and almost simultaneous diffusion over such an extended surface, with the slow and uncertain effects of successive contact. It is admitted that the virus of contagion can only radiate from an infected body to the distance of a few feet. It is also granted, that a free exposure to air dilutes and impairs its malignity. Analogy, too, would suggest, that the very cold weather which was exclusively selected by the disease, must also have diminished its effusive power. Moreover, it frequently happened that numbers were affected who had had no sort of communication whatever, (that could be traced,) with the imputed sources of infection. These considerations are sufficient to point out the difficulties which lie in the way of the opinion of its contagiousness. On the other hand, by placing the morbid power in the atmosphere—a fluid which we are constantly breathing, and which is always in contact with our bodies—we are

presented with an easy method of accounting for its diffusion, however rapid and extensive. But "sub judice lis est." I freely confess my inability to untie "the Gordian knot."*

The disease was ushered in by a variety of premonitory symptoms—such as muscular debility and inquietude, weakness of the joints, aversion to move about, languor and dejection of spirits, cold extremities, impaired appetite, tightness about the chest, stricture across the forehead, depraved taste, buzzing in the ears, dull and watry eyes, &c. To these soon succeeded a sense of chilliness, alternating with sudden flushings, and accompanied with flying pains about the head, præcordia, thorax, or joints.

After the disease was fully formed, then ensued a remarkable prostration of strength; the alternations of cold and heat were now more strongly marked, the former not unfrequently amounting to a violent and protracted ague. The breathing became hurried and laborious—the countenance either wild and frantic, or stamped with a peculiar impression of suppressed suffering and agony—the eyes suffused, watry, and rolling—the tongue covered with a whitish slime—the vigilance unceasing—the bowels torpid—the secretory surfaces dry—the skin parched, smooth, tense, and now and then mottled—the pulse at this time was commonly full, but unresisting and compressible—the pain, before wandering and unsettled, became now permanently established in some particular part.

Later in the progress of the disease, the pulse became extremely frequent, contracted, irregular, and feeble. The

* Dr. Somervail, of the county of Essex, a physician of long standing and eminence there, informed me that he considered the disease highly contagious. To prevent its spread, he advised that all the beds, bed-clothing, wearing apparel, &c. belonging to the house which might be assailed, should be buried in the earth for a night, and that large fires should be kept up in every room for several hours, with closed doors. This plan, the Doctor informed me, always answered, when rightly pursued. He considers it applicable to every contagious fever, and capable, if properly employed, of shielding mankind entirely from the deadly influence of infectious poison. For farther information on this head, the reader is referred to an essay published by the Doctor in Poulson's Daily Advertiser, September 25th, 1819.

nervous system laboured under either an immoveable weight of oppression, constituting profound lethargy or coma, or exhibited signs of excessive irritation, such as frantic delirium, tendinous commotion, great restlessness and desire to change position, tremulous tongue, quavering lips, &c. The tongue, in this stage, was covered with a dark-brown crust, hard and tenacious, which enveloped likewise the gums and teeth. The mind, at this time, often presented a sad and moving picture of distress. Amid the wild and shattered state of its energies, it exhibited tokens of constant apprehension and alarm. It was the prey of a thousand torturing visions. The spectre of death incessantly haunted it, and while there was power remaining, its terrors were conveyed in sudden starts, and wild, broken ejaculations, accompanied with an indescribable horror of countenance, and distracted energy of manner.

Although this section of country is peculiarly liable to bilious diseases, I did not discover in any case much gastric distress, or disorder of the liver and bowels. The latter were, indeed, unwilling, to an unusual degree, to respond to the medicines that were given. The stools, however, which were brought away by catharsis, were generally dark and fetid, denoting a *latent derangement* of the functions of the digestive organs.

The most prevalent forms of the disease were those of pneumonia and quinsy. In some places the latter greatly predominated: in the circle of my own practice the cases were pretty much divided. These, however, were not the only shapes which it assumed. The hip and knee joints were not unfrequently the points of local attack. Occasionally the pain was seated in the eye—often in the head, just over the eyebrows—and now and then in a toe or a finger. Sometimes the poison was so completely concealed as to elude the most careful examination. The pulse at times was no guide at all. It happened to me, more than once, to witness the dissolution of patients who, till within an hour or two before death, appeared to have little or nothing the matter with them. At other times, when all

the usual guides were absent, there was an indescribable something in the look and general cast of the countenance, which clearly denoted the rapid approach of death.

In regard to the comparative fatality of its forms, that of quinsey was decidedly the most mortal. It was not unusual for patients to be carried off with it in twelve hours. On examination, the soft parts forming the passage to the throat would be found extremely turgid, dry, of a dark purplish, or mahogany hue, and shining appearance. A great degree of tumefaction was generally observable, also on the outside, resembling somewhat a large, goiterous affection. The parotid glands were not particularly enlarged. Death was occasioned by suffocation.

The Treatment here, as every where else, was at first exceedingly perplexed and comparatively unsuccessful. The close resemblance which the disorder presented, in the wide range of its appearance, to diseases of a highly inflammatory type, led at first to a general adoption of the antiphlogistic plan. Very soon, however, a better acquaintance with the manifest depression of vital energy present from the beginning, together with the unusual effects that followed close upon these remedies, produced every where a different mode of treatment. To prevent confusion and misapprehension, I shall treat of the various remedies which were used under their appropriate heads.

In the *forming stage*, stimulating diaphoretics were exceedingly popular, and proved highly beneficial. The patient was put to bed—warm bricks, &c. were applied to the feet, legs, thighs, body, and armpits. Jening's portable bath answered the same purpose remarkably well. Strong wine whey, or hot toddy, was now administered. These, in conjunction with Dover's powder, seldom failed to bring out a copious perspiration. In this way the progress of the disease was frequently arrested—and had this step been constantly taken as soon as the creeping chilliness was felt, I have little doubt but numbers might have been saved who otherwise perished. A high degree of stimulation was popularly employed, also, as a prophylactic. This, in a

moderate degree, undoubtedly beneficial, was too often carried to a pernicious extreme. A state of indirect debility was thereby induced, which of course laid the system still more open to the inroads of the disease.

After the disease was fully evolved, in other words, in its first stage, venesection was generally performed. In a little while, however, it was every where abandoned. If it did not always prove fatal, it seldom failed to render the disease more difficult to remove. As a general remedy, therefore, very little difference of opinion prevails here, with regard to its pretensions. For the most part an obvious, nay, highly alarming reduction of the pulse, accompanied with a general prostration of the powers of life, was speedily superinduced. A few minutes after the operation, the pulse, which before might be full and steady in its beat, would be found sunken, tremulous, and flaccid, and the patient apparently on the brink of dissolution.

Of all our medicaments in fever, blood-letting unquestionably demands the strictest precaution. Used with a sound discretion, it is a simple and invaluable remedy. Errors on the contrary, in its exhibition, are extremely difficult to redeem. It is such a home-draught upon the great fountain of animal support; it diminishes so promptly and so powerfully, the force of the heart and arteries; it is such a direct subtraction of the *vis vitæ*, and all this at a time, when the digestive organs are in no sort of condition to replenish the waste—that it is evident, the most fatal consequences must follow its improper use. Local blood-letting, however, by cups and leeches, was frequently beneficial. That there was, pretty generally, a *point* of inflammatory action, either acute or sub-acute, cannot be denied. When the lungs or pleura were affected, the inflammation not unfrequently terminated in suppuration. In several cases under my notice, abscesses were formed, and the discharge from them was extremely copious. The local detraction of blood, carried its remedial influence directly to the part affected, while the quantity drawn, was too slow and

too inconsiderable in amount, to make much impression upon the system at large.

Emetics.—In the first stage, this class of remedies was found to possess a high and controlling degree of efficacy. Tart. emet. was commonly employed: other articles, however, belonging to this class were preferred by some—I used it myself in combination with calomel, with a happy effect. In all forms of the disease, vomiting appeared to be advantageous—it was peculiarly serviceable, when the throat and breast were affected. Its influence did not seem to be derived so much from its evacuant action, as from its mechanical force. The powerful succussion which it imparted to the system, thereby removing partial engorgements, and promoting a free and more equable circulation, was undoubtedly its leading advantage. Its expectorant and diaphoretic effects were no doubt collaterally beneficial.

Purgatives.—I have already remarked, that I used calomel in combination with tart. emetic. In this way catharsis was induced, after the vomiting was over. If remedies of this kind were subsequently called for, I preferred castor oil, or a decoction of senna. The drastic purgatives did not answer: it was only necessary to keep the bowels open.

Blisters.—Vesicating applications were always proper, when a fixed pain was present, or great oppression from preternatural determinations was denoted. They seldom failed to afford a great and ready alleviation of the local suffering. I used them very large, and repeated them, as long as the indication continued. When the throat was affected, they were made to extend from ear to ear. If this did not prevail, the back of the neck was next blistered. Where the first, however, drew well, it was seldom necessary in the above form of the disease, to repeat the application. Fomentations of hops, tobacco, &c. were preferred by some. Although they displayed considerable efficacy, they did not, in my hands, exhibit such a marked and controlling power as blisters. In this form too, the

pepper gargle was a valuable auxiliary. A spirituous decoction of snake root and bark, was also very good.

When frantic delirium occurred, or any other marks of high cerebral excitement, cold applications, such as cloths dipped in cold water, and made to envelop the head, constituted an excellent remedy: when these failed, it was necessary to shave the head, and apply a large blister over it.

Diaphoretics.—After the evacuations already mentioned, had been premised, the next indication was, to bring out a free and general perspiration. For this purpose, different preparations of ammonia answered the intention remarkably well. I used the sp. minder. in conjunction with warm diluent drinks. Dr. Somervail, whom I have before mentioned, informed me, that a combination of mur. ammonia, and tinct. mur. ferri, in doses of 5 grs. of the former to 10 grs. of the latter, and repeated every two hours in a table spoonful of water, was his common febrifuge, and that it had a very happy effect. Opium, neither alone, nor in the shape of Dover's powder, nor in any other shape, seemed to answer here. When the *chest* was the seat of attack, the breathing appeared to be rendered more difficult after its exhibition, the cough harder, and the expectorant effort less efficient. This was the case, however copious or long sustained the perspiration might be. It seemed, in short, to be only admissible, when the violence of the pain was intolerable, and where irritation and restlessness required to be allayed. For these purposes, cautiously exhibited, it was certainly advantageous. The emeticized preparations were preferred by some: James' powder, which you extol so highly, was, I believe, used by no one—in consequence, perhaps, of its having, like many other valuable remedies, *gone out of fashion*.

As soon as the pulse lost its volume, and became frequent, a high degree of stimulation was demanded. Camphor, seneka, volatile alkali, wine, and ardent spirits, were the leading articles, employed at this time. The volatile alkali was decidedly the most powerful remedy—the seneka, however, was often eminently serviceable—especially in

the pleuritic form of the complaint. In ordinary cases of pleuritic disease, combined with a typhoid inclination, in the general action, there is, perhaps, no remedy more to be relied on. Camphor was beneficial, when tendinous commotion prevailed: good old Madeira wine, whenever it could be procured, was also an excellent remedy: ardent spirits were substituted when it could not be obtained—wine, however, has an invigorating and sustaining influence which does not belong to the other.

In the last stage, when the pulse sunk, and the extremities became cold, irritating rubefacients were better than blisters. The discharge which the latter occasioned, did more harm, than their previous stimulation could compensate.

Such, sir, is a succinct account of the symptoms and treatment of this extraordinary malady. You will perceive, that in regard to the treatment, my remarks have been confined to its purest forms, and their regular stages. Such however, was the wide range of eccentric and anomalous action, which it indulged—so extensive the heterogeneous and inconsistent association of symptoms, that it would be utterly impossible to furnish any thing like a systematic view of the treatment, which was at all times demanded. In no disease, perhaps, hitherto known, was the physician so completely deprived of the benefit of the experience of others, or of the aid of his own observations. He was thrown at once, in almost every successive case, upon the immediate resources of his judgment: his sagacity, penetration, and tact, were constantly in requisition to the uttermost. To add to the difficulties which surrounded him, he had scarcely any time allowed him for reflection. So rapid was the disease in its progress, that the utmost promptness of remedial application, was imperatively demanded.

“Whence, and what art thou?” a question so often addressed to this hideous disorder, I shall not attempt to resolve. The strange season of its appearance—its gradual progress from state to state—its unabated malignity, when travelling through the thinnest settled districts, and the

purest climates—its eccentric and ever-varying shape,—all these must render the task of drawing aside the curtain which conceals the mystery of its origin, and peculiar constitution, hopeless in the extreme.

In former times, when natural causes were very little known, epidemical visitations were ascribed to the awakened wrath of Deity. This superstitious conviction, no doubt derived its origin, from the suddenness of their onset, and the indiscriminate havoc of their sweep. Numbers, seeing the darkling and perplexed condition to which the faculty are reduced on this head, are disposed, even now, to place them to the same account. But it is consolatory to know, that however far we may be thrust back from the source of their emanation, we are still permitted, by a diligent inspection of their character, to invent and apply remedies, calculated, to a liberal extent, to shield mankind from their deadly invasions. This is a field in which nature has permitted us to labour with free and unstinted prospects of success; though until a reform is effected in the pathological department of our art—until our method of reasoning upon the character of disease, has acquired a due proportion of *Baconian discipline*, no sanguine hope of the full measure of its blessings being poured upon the physical infirmities of the species, can be reasonably entertained. Fortunate, indeed, would it be, for the usefulness of the profession, and this is its best and brightest ornament, if this happy period had arrived. The bigotry of hypothetical creeds, either blinds its partisans to the testimony of experience, or compels them, in spite of the forcible appeals of nature, to resist the conviction of their truth. An immortal name is ideally at stake, and the welfare of man must be sacrificed at the shrine of this idolatrous image.

But, when we cast a look over the diversified field of human acquirement, we perceive a master spirit of philosophy abroad. Almost every science seems to have hit at last upon the unostentatious, though true method of pushing itself ahead. The mass of crude and chimerical absurdities with which the licentious vagaries of former times had en-

cumbered them, is fast mouldering away. Although this benign influence has, perhaps, been more obstinately contravened in our profession than any where else, still it is apparent enough, that within the last fifty years, our views, and treatment of diseases have greatly improved. *Nature* is becoming more and more revered. When her wise and beneficent indications have gained a full ascendancy over the minds of practitioners, then, and not till then, will the principles of our art be established on a sound and imperishable foundation.

ART. VIII. *Cases illustrative of the Efficacy of Sulphurous Fumigations, in certain Cases—with preliminary Remarks.* By G. EMERSON, M.D. Read before the Philadelphia Academy of Medicine.

THE application of sulphurous vapour to the treatment of diseases, is of no very recent origin. The credit of having first suggested the practice has lately been attributed to Dr. J. P. Frank, of Vienna, who, several years ago, stated that the most speedy and efficient method of curing psora, would be to surround the naked body, in a state of perspiration, with an atmosphere of sulphurous vapour or gas. It is, however, but justice to remark, that more than a century and a half have elapsed since Glauber employed sulphurous fumigations in the treatment of the same disease; and it is said that ever since his time, the same practice has prevailed among German physicians.* But the merit of having most fairly tested the efficacy of this remedy justly belongs to Dr. Galés, of Paris. He contrived the necessary apparatus, and, after the most unremitting persever-

* At Solfatara, a volcanic district in Italy, a sulphurous gas escapes in great abundance through fissures in the earth, constituting a very interesting natural phenomenon. The inhabitants of the vicinity, availing themselves of this natural laboratory, have, from time immemorial, been in the practice of erecting small huts or receptacles over these openings, in which they expose their bodies to the action of the vapour, for the cure of various diseases.

ance in experimenting upon many hundred patients, reported in a memoir, published in 1816, his successful experience to the world.*

The whole process had been submitted to the investigation of a medical tribunal composed of several of the most distinguished practitioners in Paris—namely, Doctors Pinel, A. Dubois, A. E. Tartra, Esparron, and Bouillon Lagrange, who were nominated as a committee on the part of the St. Louis Hospital. After two months' examination, these physicians made report, and gave a decided preference to Dr. Galés' plan of treating psora over all others in use.† In the year 1813, the Faculty of Medicine in Paris likewise appointed a committee, consisting of M. Leroux, Dean of

* *Memoire et Rapports sur les Fumigations sulfureuses, appliquées au traitement des affections cutanées et de plusieurs autres maladies.*

† *Conclusions du Rapport du Jury.*

Le jury conclut de toutes les expériences, qu'il a vu faire et suivies sur le traitement de la gale, et d'autres maladies chroniques et éruptives, par les fumigations sulfureuses.

"Que l'efficacité et l'innocuité de ce traitement sont suffisamment constatées.

"Qu'il peut et doit être admis dans la pratique ; qu'il peut mériter la préférence sur tous les autres ;

"Qu'il importe de la faire connaître, de le propager, de l'établir, dans les hôpitaux, spécialement pour le traitement de la gale ; de l'indiquer aux gens de l'art comme un excellent auxiliaire dans les maladies cutanées, chroniques et éruptives.

"De l'établir à bord des vaisseaux, dans les camps, à la suite des armées, dans les prisons, les casernes, &c. &c.

"Qu'il est à désirer qu'il se forme des établissemens publics pour l'administration de ce moyen, et pour que tous les particuliers puissent profiter de ces avantages."

J'ai l'honneur de présenter au conseil deux exemplaires réguliers de ces procès-verbaux ; l'un pour être soumis à la connaissance des membres du conseil qui voudront bien s'en occuper, et ensuite remis dans les archives de l'administration.

Je propose de remettre l'autre à M. le Baron préfet de la Seine, avec invitation de le transmettre à son Excellence Monseigneur le Ministre de l'intérieur, en priant son Excellence de donner la plus grande publicité à cette méthode, d'une si grande importance par l'efficacité, l'économie du temps et celle des dépenses.

Signé MOURGUE.

(Membre du conseil général de l'administration des hospices civils, et spécialement chargé de la surveillance de l'hôpital Saint Louis.)

the Faculty, and Professors Percy, Dubois, Richerand, and Dupuytren, who, after an attentive investigation, in the year 1815, gave the result of their inquiries. They concurred entirely with the other committee in their favourable opinion of Dr. Galés' practice; and such was the influence of their approbation, that by an order of the French government, it was introduced into the public hospitals and ships of war.

Dr. Galés professes to have been led to the employment of sulphurous fumigation in psora, by theoretical deductions. Suspecting the disease to arise from the presence of minute insects in the pustules, he instituted a series of exceedingly nice microscopic examinations, by means of which he not only succeeded in ascertaining the fact, but also in demonstrating it to most of the professors of the Faculty of Medicine, in Paris, as well as to many distinguished entomologists. He exposed these animalculæ, to which he gave the appellation of *le ciron* or *acarus scabei*, upon glass plates, to the fumes of sulphur at a moderate heat, and states that he saw them suddenly expire. From these facts he has been led to doubt the existence of a particular psorique virus, and believes the disease propagated by the direct application of the living animalculæ to the epidermis, and that they may be most effectually destroyed by means of the penetrating acid fumes of sulphur.

It must be observed that when Dr. Galés first employed sulphur fumigations, his ideas did not extend beyond the treatment of the most ordinary cutaneous affections, to which his attention had been particularly directed in the St. Louis Hospital, an institution appropriated entirely to those disorders. But meeting, among the numerous cases subjected to his process, many of a complicated character, some of which were found to yield to the treatment intended only for the primary or most prominent affection, he was thus accidentally led on to a wider range of experiment.

The high authority upon which the practice rests, together with its success, is sufficient to inspire the greatest confidence. The experiments of Dr. Galés had been very nu-

merous when he appeared before the public, for he informs us, in his memoir, that 335 patients had been cured by it in the St. Louis Hospital. This evidence would seem amply sufficient to establish the efficacy of sulphurous fumigations applied to psora, and many well attested cases of tetter, prurigo and tinea capitis, chronic rheumatism, atonic gout, palsy, &c. have evinced their efficacy when applied to them.

The imperfection of the process first employed by Dr. Galés, may be adduced as a proof of his ignorance of what Glauber, and others, had written upon the subject. A warming-pan (*bassinoire*) containing ignited coals, was introduced into the bed along with the patient, and sulphur being thrown into it, the fumes were prevented from escaping, by carefully tucking the bed-clothes about the neck. Although the results of this process were striking, it was soon found to be very inconvenient. The sheets were sometimes injured by the concentrated acid vapour, which, as it could not be prevented from escaping, proved highly offensive to the patient and attendants. To obviate these unpleasant circumstances, the fumigating chamber or bath, was constructed, into which the sulphur was introduced, along with a sufficient quantity of caloric, after having been volatilized outside. The patient, seated naked within, had his body completely surrounded by the fumes, the face being the only part free from their action.

Dr. De Carro of Vienna, who introduced this process, with considerable modifications, into the Austrian capital, has confirmed the successful pursuit of Dr. Galés, and published an interesting account of his practical observations. The Austrian Government have rewarded his zeal and enterprise, by an annual stipend of 5000 francs.

The fumes of a variety of aromatic, spirituous, and resinous substances, were employed in medicine, as far back as the days of Hippocrates. Their use has been a long time abandoned, except that of alcohol, which has, within a few years, been revived in this country. Mercurial fumigations, from their possessing specific virtues, have been used with

great success in various affections, principally of syphilitic origin. It is probable, however, that the employment of this potent article in these cases, may be superseded by sulphur alone, or that when both are conjoined, very little mercury need be used.

Chemically considered, the vapour we treat of, is not simply sulphur in a state of minute division, effected by caloric. During the combustion which ensues, the atmospheric air, which cannot be entirely excluded, supplies a sufficient quantity of oxygen for the formation of sulphurous acid gas. This acidity may, however, tend to increase the efficacy of the fumigations in many, if not in most of the cases to which they are applicable. The presence of the acid is immediately ascertained by means of litmus paper, which is quickly reddened when exposed to the fumes. The perspiration covering the body, and the water squeezed from a wet sponge, which has been left some time in the bath, produce a similar effect upon the same test. The quantity of acid may be readily increased at any time, by the addition of nitre, black oxide of manganese, red oxide of mercury, or any other substance which parts with oxygen at a moderate heat. But in general, there is as much acid generated, as the skin will bear when applied to it often, and I have occasionally seen considerable inflammation of the exhalents produced no doubt, by the acrimony of the gas.

The operation of the sulphurous vapour, is by no means uniform. The habit of the patient, the state of his system, as indicated by the pulse, lead to very different results. The general and most striking effects, are such as proceed from a stimulant. The pulse is increased in force and frequency, the face is flushed, the skin relaxed, and the perspiration flows freely from all parts. In most cases, the pulse rises far above, and then sinks below its natural standard. If, for instance, it beat 80 per minute on entering the bath, it will rise to 90 or 100, and soon after leaving it, fall to 70. Thus we perceive a strong impression is made upon the system at large, the powers of which are at

first highly excited, and afterwards tranquillized. We cannot suppose that this impression is confined to the blood-vessels alone. Every system of the whole æconomy, is no doubt acted upon, and the lymphatics on the surface in particular. In many instances, the patient perceives a cool sensation, almost amounting to a chill, for some minutes after entering the bath, whilst at the same time, the perspiration flows freely. The well-known refrigerating effect of diaphoresis, might be sufficient to account for this phenomenon, but for two reasons. In the first place, when the perspiration is profuse, it is not always felt, and in the second, it often occurs before sweating commences. The last objection may, perhaps, be removed, by referring the effect to increased insensible transpiration.

The first impressions, are usually perceived about the scrotum and epigastrium, which, after a few minutes exposure, begin to tingle and feel warm, particularly the former, which requires the protection of a piece of bladder, or oil-cloth. This tingling or pricking sensation, which is most probably owing to the acidity of the fumes, often extends over most of the body, particularly when the perspiration is not free. If, however, the skin becomes relaxed, and the exhalents discharge themselves copiously, it is not at all, or but slightly perceptible. The epidermis of the whole exposed surface, always peels off, and this process continues, where the skin is thickest, for three or four weeks.

In some instances, the blood has been determined so strongly to the head, as to produce considerable vertigo. This effect should never be lost sight of, as by inattention to it, very disagreeable consequences might result, under some peculiar circumstances.

The action of the vapour upon diseased parts, is well worthy observation. In chronic rheumatism, the affected joints seem to be penetrated in an especial manner, whilst the sound ones appear to escape its influence. In my first experiment, made upon a case of chronic rheumatism, the patient said, that he felt as if the fumes were actually penetrating through his stiff joints. In tetter I have observed

that the diseased surface is rendered exceedingly florid, and appears violently inflamed, although little or no peculiar sensation is perceived. The redness quickly disappears, leaving the skin smooth, and evidently better.

The effect of the vapour is generally to relax the surface, unless too much is suddenly applied, or the tone of the system is too high, when the exhalents are constricted and inflamed, and the perspiration either immediately checked, or greatly suppressed.

Does the minutely divided sulphur find its way into the circulation? When every exhalent is overflowing with perspiration, what inlet is there for the admission of any substance, however impalpable? Yet, unless we answer this question affirmatively, we may find ourselves greatly at a loss in explaining the rationale of the cure of *tinea capitis*, and other diseases confined to the head, by fumigations applied to the body only. My experience has been, as yet, comparatively limited, partly from the pressure of professional business, and partly from the want of suitable cases for experiment. I should feel considerable hesitation in making this report so soon after commencing operations, was it the first record of a new practice. As, however, it is only to be regarded as a confirmation of the experience of others, I feel a perfect freedom in seizing the first opportunity of bringing into more general notice, a powerful agent in the cure of diseases. In most of the cases treated, I have laboured under many disadvantages, from the imperfection of the apparatus, and the want of experience. Both of these obstacles, I flatter myself, are now surmounted, and the field for experiment fairly laid open. My first trials were witnessed by my friend Dr. Harlan, whose assistance was one of the first inducements for me to commence and persevere in the practice.

Besides the diseases already found to yield to sulphurous fumigations, there are several of obstinate character to which I am very anxious to apply them. Among these are scrophula in all its forms, secondary and pseudo syphilis,

various kinds of ulcers, chronic hepatitis, amenorrhœa,* chlorosis, and chorea sancti viti.

From the numerous cases recorded in Dr. Galés' memoir, I select a few for translation, which will no doubt be found interesting.

CASE I.

Herpes.

D—— (Stanislas) ætat sixteen years, of a lymphatic temperament, the offspring of a mother who, besides possessing a scrophulous constitution, was affected with herpes. From childhood he had been subject to a tetter of a scaly and moist nature, which sometimes spread itself in blotches over the whole body, and then disappeared, except upon the head, where it remained fixed.

Admitted to l'Infant Jesus, D—— was there treated for five months after the practice of M. Jadelot, physician to that hospital, without success. He entered the St. Louis Hospital the fifteenth of May, 1814, where he underwent a treatment consisting of the internal employment of sulphur, united with the ordinary warm bathing, and afterwards used the sulphurous baths. On the tenth of August he was submitted to the sulphurous fumigations. At the twelfth, the tetter had disappeared in many places, but still remained upon the left arm, the hands, and legs, where it obstinately resisted till the twentieth fumigation, after which it only appeared in the form of dry scales, easily rubbed off. The skin had lost its high red colour. The fumigations were continued to forty, when the disease was completely cured.

CASE II.

——, Ranc, Rue Neuve Sainte-Geneviève, No. 7, ætat seventeen, had a tetter in the face for two years, which yielded to medical treatment, but re-appeared some time after, and was worse than at first.

* See Case viii

He was radically cured by fumigations, applied to the body alone, the diseased surface not having been exposed. Ten applications, made in as many days, effected the cure.

CASE III.

M. N——, ætat forty-eight years, had a crusty ringworm upon the chin, which gave him great inconvenience, for several months, by its severe itching. He was cured by fifteen fumigations administered to the body only, the head being entirely free from their action, as in psora. The cure was completed in fifteen days.

CASE IV.

M. M. ætat 33, living in the Faubourg St. Denis, No. 52, had a crusty ringworm which covered his chin. He had used various remedies for it both internally and externally, but without advantage. He was perfectly cured by eight general and five local fumigations, each of the latter of thirty minutes duration.

CASE V.

M. B. ætat twenty-two years, had a miliary eruption of six weeks standing. Five fumigations, taken in five days, completely cured him.

CASE VI.

Herpetic corroding Ulcers, accompanied by a scorbutic Diathesis.

S——, ætat twenty-six years, of a bilio-sanguineous temperament, and robust constitution, following the occupation of a porter, has been affected for the last ten years with numerous herpetic corroding ulcers, of a scorbutic character, upon the left leg. He had in vain sought a cure in many hospitals in Paris.

Admitted into the St. Louis Hospital the seventeenth of September, 1814, S—— exhibited the following symptoms; face livid, and of a greenish cast; gums red, soft, and tumified; inappetence; vigilance; general lassitude;

aversion to exercise ; despondency, and sadness. The left leg was double its ordinary size, and the skin covering it was purple in every part. In some places it was hard and studded with small, ulcerating pustules, discharging an acrimonious ichor, which corroded the adjoining cuticle. There were three ulcers, the largest of which was upon the malleolus internus. They were nine lines in depth, with bloody, uneven edges, and discharged a red and fœtid sanies. The surrounding skin was of a deep erysipelatous red. The patient experienced in the affected extremity an obtuse, uneasy pain.

S——— was put upon a tonic regimen, with bitters, and the use of sulphurous fumigations. At the sixth, the ulcers were cleaner, the pus appeared more laudable, the serosity which proceeded from the pustules was no longer corrosive, the leg began to grow less, and a violent prurigo succeeded to the former pain, which was, however, subdued by the application of emollient cataplasms. At the eighteenth fumigation, the leg regained its natural size, but still preserved its purple hue. The pustules having disappeared, the reticular tissue was no longer the seat of disease. At the twenty-sixth fumigation, the only remaining ulcer was that upon the internal malleolus. The skin of the leg regained its natural colour, appeared wrinkled, and threw off a considerable quantity of dry pellicles. At the fifty-second fumigation, the patient was perfectly cured. The ulcers have not since opened, although S——— has been in the habit of using violent exercise, and carrying heavy burthens.

It is worthy of remark, that from the moment a favourable change was observed in the leg, there was also a corresponding improvement in the digestive functions, as well as in the mind of the patient ; the hope for a cure having been constantly kept alive by the rapid progress it made.

CASE VII.

Dry, scaly Tetter, overspreading the whole Body, and complicated with Jaundice.

Berger (Jaques) ætat twenty-five years, of a sanguine

temperament, and strong constitution, whilst confined in the English prisons, became infected with a crusty tetter, upon the arms, the thighs, and legs, which, on account of improper regimen, and an unhealthy habitation, became dry and scaly. It extended itself over the whole body, in patches of different sizes, elevated a little above the surface of the skin. These places were of a lively red colour, and covered with a thin pellicle adhering very closely, like the skin of an onion. No moisture ever appeared upon the surface, although the patient experienced, every evening, the most violent itching. To this herpetic eruption a jaundice was superadded, occasioned by an obstruction in the liver, which viscus could be easily felt enlarged and descending below the false ribs. The functions of the stomach were disordered.

Berger was submitted to the sulphurous fumigations on the sixth of July, 1814. Aperient draughts were administered along with this treatment. At the eighteenth fumigation, the colour of the skin was not so high; the itching had greatly subsided; the liver was not so hard; and the appetite was improved; the skin had lost much of its yellowness. At the thirty-ninth fumigation, a large quantity of scales were easily detached from the diseased places, the itching had entirely subsided, and the liver had regained its natural condition. From this period of the treatment to the seventieth fumigation, the progress of the tetter towards a cure was slow. The fumigations were suspended for a few days, when they were again resumed, and the disease, which advanced rapidly towards a happy termination, was finally cured after ninety applications.

This patient returned to Amboise, the place of his nativity, from whence he wrote on the 11th of December, 1814, confirming the establishment of his health.

CASE VIII.

Universal Paralysis.

Madame Roper, ætat 57, living in Rue St. Martin, No. 17, was seized, in the month of May, 1814, without any

obvious cause, with universal palsy, which, for three months, resisted all the ordinary modes of treatment. On the 6th of July, 1814, she consented to make trial of the sulphurous fumigations. On the 22d of August, after having received twenty-seven, she could walk easily without lameness, and even make excursions into the city, eat with the assistance of her own hands, thread her needle and sew, all which it was impossible for her to do before. From the first days her sleep and appetite were restored. Flattered with the advantages derived so suddenly, she omitted the fumigations for a time, but resumed them again. Forty were sufficient for a radical cure. M. Leroux, Dean of the Faculty of Medicine of Paris, and many other physicians, witnessed the condition of the patient previous to the use of the fumigations, and visited her three or four times a week during her treatment. Professor Hallé has also seen her, and satisfied himself of her perfect cure.

CASE IX.

Hemiplegia.

A soldier, aged twenty-five years, wounded in the Bois de Romainville, at the first attack on Paris, remained three days and nights upon the ground, without receiving any assistance. He was found with hemiplegia of the right side, and carried to the St. Louis Hospital.

At the desire of Dr. Galés, Professor Richerand administered to this patient the sulphurous fumigations. From the first application he was enabled to walk, and derived a very sensible and general amelioration of his symptoms, which was gradually augmented until the twenty-second fumigation, after which, feeling himself pretty well, he neglected the treatment, and requested permission to join his regiment.

In the mean time he was attacked by the typhus, then epidemic in the hospital, and died in a few days of this incidental disease.

In all probability this patient might have been perfectly

cured of his hemiplegia if he had not been cut off by the hospital fever.

CASE X.

Hemiplegia of the right side.

M. D—— (Paul,) ætat 19 years, of a lymphatic temperament, was attacked in the month of June, 1814, with violent cephalalgia, most severely felt in the occiput. Two emetics and two bleedings removed the pains in the head, but the patient was seized with convulsions, which lasted eight days, and left him with hemiplegia of the right side. The motions of his tongue were suspended, and a loss of speech, the consequence. The urine was discharged involuntarily. The internal employment of valerian, arnica, musk, and the oxide of zinc, and the external application of aromatic vinous baths, blisters to the nape of the neck, and to the right arm, together with a plaster of Burgundy pitch over the whole extent of the vertebral column, were without success.

On the 21st of September, 1814, M. D—— was submitted, at the hotel Jabach, to the sulphurous fumigations. At the third, he was enabled to move the extremities a little, and the tongue was more free. At the ninth fumigation, these movements were still more easily performed. At the fifteenth, the patient had recovered his speech, and at the twentieth, could walk alone and dress himself. For some slight symptoms of gastric derangement, an emetic-cathartic was prescribed. At the 24th fumigation, M. D—— was perfectly cured, and has not since experienced any difficulty in performing his regular motions.

CASE XI.

Lymphatic swellings of the right knee, accompanied with Prurigo over the whole body.

M. P. L——, born at Chaumont, in the department of Oise, aged 30 years, of a lymphatic temperament, and delicate constitution, was guard of honour in the first regiment, when he was attacked in the month of February, 1814, with the contagious typhus. At the termination of this disease, indolent tumours appeared upon the right thigh and leg,

which, when opened with the bistoury, discharged pus freely. After a cure, the whole surface of the body was affected with prurigo, and a lymphatic tumour, of the size of a hen's egg, made its appearance upon the outer side of the right knee, which deprived him of the use of his leg. The tumefaction became so great, as to obstruct entirely the motions of the articulation.

M. P. L.— entered the St. Louis Hospital, on the 14th of June, 1814, and was immediately submitted to the sulphurous fumigations. After the fourth, the itching was greatly diminished, and the patient had some motion in the joint. At the eighth fumigation he laid aside one of his crutches, and at the fifteenth abandoned the other. At the twenty-third, the tumour disappeared, and after the thirtieth, M. P. L.— returned to his occupations without experiencing any difficulty in the motions of his limb.

CASE XII.

Glandular swellings of the Breast.

Mad. D— had received a blow upon the left breast which occasioned a considerable enlargement of a lacteal gland. This lady was advised by M. Leroux, to try the effect of the sulphurous fumigations. Whilst within the apparatus, a column of sulphurous vapour was directed upon the tumour by means of a proper tube. The swelling was, by this means, soon resolved, and the necessity of a severe operation thus avoided.

To the preceding Cases, I am now to add some which have come under my own care.

CASE I.

A gentleman from South Carolina, has been for several years subject to prurigo formicans, a cutaneous disease of the most obstinate character. For several months past he has strictly followed the ordinances of a physician of the highest eminence, and, among other means, has employed sulphur frictions with the greatest assiduity, but with very little, or no advantage. The itching, which extended over

the body and extremities, was particularly tormenting at night. Very little eruption was perceptible.

Mr. — received seven fumigations, from the 28th of July to the 3d of August. The first lasted forty minutes. The skin was slightly relaxed, but irritated too much to allow of free perspiration. The pulse rose from 70 to 85 per minute.

The second fumigation lasted forty-five minutes. The perspiration was free at first, but the excitement and warmth of the skin became so great, that the exhalents closed. He perceived no particular sensation until about twenty-five minutes after leaving the bath, when an itching and pricking commenced, the skin growing more florid. He was a good deal harassed by this irritation during the remainder of the day.

At the third fumigation, the epidermis was observed to peel off. He complained greatly of the soreness of the skin, produced by the two first applications, arising apparently from inflammation of the exhalents. Small patches of eruption were scattered here and there, over the body and extremities. He remained half an hour in the bath.

At the fourth, fifth, sixth, and seventh fumigations, he still experienced the heat and irritation of the skin, which was now so sore as to oblige him to desist from further applications. For many days after, the surface of the body was severely inflamed, and very painful. The epidermis peeled off several times. He despaired of a cure. I was, however, firmly of the opinion, that the disease would subside with the inflammation, and happily the event justified my prognosis.

The skin of this gentleman, from some natural or accidental cause, was exceedingly irritable. Had the inconvenience arising from this condition been anticipated, it might have been obviated, and the disease subdued by more frequent, but milder fumigations.

CASE II.

A young gentleman of this city, had been long troubled

with an obstinate herpetic eruption, of the kind commonly called tetter or ring-worm. The disease covered the right cheek, part of the ear of the same side, extended down the neck, over and under the chin, terminating at the lobe of the left ear. After three general fumigations, the disease was subdued, and the skin resumed its natural appearance and functions.

CASE III.

Chronic Rheumatism.

John Jones, a seaman, aged thirty years, during his last voyage to Liverpool, was attacked with an eruption, accompanied with severe pains in his limbs, and various parts of his body. He consulted a physician in Liverpool, who perhaps, believing his complaint of syphilitic origin, although he positively denied the possibility of such an occurrence, put him under a course of mercury, and salivated him twice. The pain was only aggravated by this treatment, since which, he has not been able to help himself. He has been under no regular regimen since his return to this country. When he applied, he complained of severe lumbago, pains and stiffness of the joints, which were worse at night.

The first fumigation was made on the 27th of July, when he remained in the bath forty-five minutes. The perspiration induced was free, but not copious. For the first fifteen minutes, no particular sensation was perceived. Afterwards a pricking commenced, most sensibly felt in the affected joints, which he said, seemed to be penetrated through and through. Before he left the bath, he perceived considerable alleviation of his pain. When he came out, he found himself much more supple, and put on his clothes with a degree of ease to which he had, for several months, been a stranger. The pricking sensation continued some time.

On the 28th, he again entered the bath, in which he remained forty-five minutes as before. The skin was soon relaxed, and he perspired pretty freely. The excitement of the surface at last became so great as to arrest the flow of perspiration, and the sense of pricking was greatly increas-

ed. The diseased joints were again most acted upon, feeling as if they were penetrated by the fumes. When he came out, his skin was of a deep scarlet. All his pains were relieved, except those of the loins, which were much less.

On the 30th, he returned much gratified with the relief he had obtained, and thought one more fumigation would be sufficient to perfect a cure. The only stiffness now felt was in the loins. The epidermis was peeling off. He remained in the bath half an hour, during which time he felt, as usual, the burning and pricking sensations. His skin was again highly excited, which accounted for the defective perspiration.

On the 3d of August, he called to inform me, that he was perfectly well, except a trifling weakness in the lumbar region. He had regained all his former activity, and went to sea a few days after.

CASE IV.

A——B——, ætat thirty-five, of a robust constitution, had been for fourteen years afflicted with lumbago, subsequent to a contusion. During this period, he was under the constant necessity of wearing a broad belt about his loins. He received the first fumigation on the 30th of July. He remained in the bath forty minutes, perspired freely, and came out much relieved. The belt was left off.

Three days after, he received a second fumigation, and stated that he had derived great relief from the first, and had not been under the necessity of resuming his belt. He took a third fumigation, and several days afterwards, returned to give a further confirmation of the favourable report he had already made. He was altogether better, and the changes in the weather no longer affected him.

CASE V.

Alexander M'Surley, ætat thirty-five, of a vigorous constitution, which has never been impaired by disease, was seized with acute rheumatism, about the middle of last

May, when on the eve of embarking at Dublin for this country. His hands and feet were most affected, and the pains frequently alternated from the extremities of one side to the other. On the 1st of August when he made application to me, he was unable to walk many steps, from the stiffness and soreness of his joints. He could neither bend his toes, nor close his hands. Immediately after the first fumigation, he was greatly surprised to find a pliancy of the fingers, which enabled him to touch the palms of his hands with their extremities. The improvement in walking was very evident.

Living at a considerable distance off, and not having it in his power to call as often as would have been desirable, he did not repeat the bath till the 6th, when he again appeared much benefitted. On the 11th, he came for the third time, when, upon inquiring the state of his health, he informed me that he was no better. However, after a little investigation, I ascertained, that his condition was greatly improved. With the assistance of canes, he could walk tolerably well six or eight furlongs, whereas, until he received the fumigations, he had not been able to hobble further than across the room. His fingers and toes had lost much of their stiffness. He came to me on horseback, and as he mounted and dismounted himself without difficulty, I considered it another proof of his amendment. After having received such decided benefit from only three applications, I was very sorry to hear him say, that he would not have it in his power to call again.

CASE VI.

Gouty Rheumatism.

A gentleman from Maryland, aged about thirty years, in passing through this city, determined upon trying the sulphurous fumigations. He had been subject to occasional attacks of a gouty nature, confined to the joints of the feet and knees, which were painful and tender, particularly those of the great toe and next one to it. These pains alternated frequently from one foot to the other. It was with consi-

derable difficulty and pain that he was enabled to walk across the room with his shoes on ; and without them he would not attempt it. The symptoms were aggravated by atmospheric changes.

He had not been exposed to the sulphurous vapour many minutes, before he experienced considerable alleviation from pain, and remarked that the affected joints were becoming more supple. He remained in the bath forty minutes, during which he perspired freely, and perceived none but the most agreeable sensations. Immediately after coming out of the bath, he walked about the floor barefoot with considerable ease.

He repeated the fumigations next day, and again found great relief. He was very much gratified with the result of the applications ; but being obliged suddenly to leave the city, they were of course discontinued.

CASE VII.

Paralysis.

Margaret Dilwy, aged about twenty-five years, suddenly lost the power of motion and sense of feeling in the left arm and hand, from lying upon it whilst asleep. Before seeing me, she had applied blisters to the part, without deriving any sensible benefit from their use. Determined upon giving the ordinary treatment a fair trial, I ordered her occasional cathartics, and active frictions night and morning, with a liniment composed of equal parts of ol. olivar., spts. cornu cervi, and ol. tereb. At the end of a month, no sensible improvement had taken place. The muscles of the arm had not acquired the power to move it ; and when raised up it fell like a dead mass. I now determined upon trying the effect of local fumigations, and made the first application on the fifth of September, between which date and the tenth, she used the bath six times. The first fumigation excited some warmth and a tingling in two or three of the fingers. At the second, she felt a slight pricking sensation. At the third, there was a sensible improvement ; the skin remained relaxed, moist, and

warm, and she began to make use of her arm. After the fourth, she could raise her hand above her head, and hold things in it with ease. The paleness and coldness were no longer obvious, and, after the fifth and sixth, the part had regained its natural actions. Upon examination, several days after, the limb was so nearly well that I considered further applications unnecessary.

CASE VIII.

I have met with one case in which the fumigations exhibited emmenagogue effects, which, however, I will not insist upon as unequivocal. Mrs. ———, ætat twenty-eight, had been for many years subject to violent attacks of rheumatism, during the continuance of which the catamenia had always been suppressed. For about three months previous to applying to me, she had suffered much from pains in the left hip, knee, leg, and right elbow-joint, which were severe at night, but most so in the evening. To alleviate her condition, she had resorted to the use of laudanum, and was seldom free from its influence. On the sixth and seventh of July she entered the fumigatory, and at each time experienced shooting pains in various parts, which might be compared to the effects of electricity or galvanism. Her pulse was a good deal excited, and the perspiration by no means profuse.

On the ninth, her husband came to me, with the information, that a few minutes after she left the bath on the seventh, the pains in the loins and hips had greatly increased, and were quickly followed by the appearance of the catamenia. The fumigations were omitted for a time.*

* In presenting the above article to our readers, we cannot forbear to express our confidence in the practice which it inculcates. That the fumes of sulphur should be a powerful agent under the circumstances mentioned, seems altogether probable, and we have the best evidence that they have proved so on trial.

Distinct from the foreign reports on the subject, we are now furnished with the attestation of one of our own practitioners, who unites, in an eminent degree, the properties of careful observation and dispassionate decision.

As Dr. Emerson has fitted up an apparatus which applies, with the greatest advantage, the remedy, we strenuously recommend to persons suffering from diseases to which it is appropriate, to his care and attention. EDITOR.

ART. IX. *Case of a large Mass of an Amalgam of Tin and Mercury retained in the Bowels. Communicated in a letter to the Editor.* By JOSEPH A. GALLUP, M. D.

DEAR SIR,

BEING a reader of your excellent Journal, I noticed a case of the use of an amalgam of tin and mercury, for the cure of tænia, by Professor Caldwell,—and also, some further remarks, by Dr. Wilson, on the same case. The former asks, “does there exist on record, or in tradition, any similar case, &c.?” The latter, seems to justify the practice in part, and observes, “in a similar case, I should be inclined to use the same remedy, with great confidence.” He, however, intimates that he would extend the intervals, according to Darwin, to two hours between the doses.

I have a knowledge of a case very similar, which occurred some years past, and it is the only one I ever knew of the amalgam being used. As it possibly may be interesting to some of the parties, and useful to the community, I have been at some trouble to collect a few of the facts, not immediately in my possession.

Cephas Phelps, aged twenty-three, naturally of a well balanced constitution, but had contracted ill health, and become gradually whimsical and inclined to hypochondriasm. He was convinced, that he was affected with worms, and had got a knowledge from some almanac, that an amalgam of tin and mercury would destroy them. His father went to an apothecary and got eight ounces of each of these articles, and a physician in the neighbourhood helped him to prepare them exactly according to Darwin's formula. They were made into an amalgam, and divided into two-ounce doses, and his father told me, he gave him one of these doses exactly every two hours, until the whole were taken without loss. I have lately seen the physician, who again related to me the facts, and said he exactly followed Darwin's directions. He took this anthelmintic in April, 1816.

About the time he had finished it, he began to experi-

ence much distress at his stomach, and frequently puked. He took freely of saline cathartics, as proposed by Darwin. He vomited frequently, and became so distressed, that his physician stayed with him, and in the course of thirty hours, the cathartics took effect, and he gained more ease. They all bestowed much attention to the stools, to detect the worms, and the amalgam. They found no worms, and only a very little of the amalgam, perhaps, not more, according to what the physician said, "than half an ounce."

Though he was a little relieved, he had distress for some time in his bowels, and more sensibly, when he walked or rode. He felt a weight a little below, and to the left of the umbilicus. He could walk, by being careful of sudden motions, and even ride in a slow walk.

About two months after taking his metallic dose, and having become alarmed from his new situation, he came to me for advice—and said he thought he perceived it still in his bowels. On examination, I found very exactly, the condition described by Dr. Caldwell in his patient—a heavy rounded mass, apparently in the intestines, which would move to different situations in the abdomen, as the body was inclined. The seat or position of it, as the patient stood erect, was a little to the left, and below the umbilicus, say three or four inches—and as I conjectured at the time, in the segmoid flexure of the colon. It would vibrate quite to the right hypochondrium, without producing much uneasiness, and I could almost seem to grasp it in my hand, when he lay on his face, with the muscles relaxed. Had nothing been said to me, relative to the quantity he had taken, I think I should have thought, that this ball would have weighed about one pound.

The patient and his friends were alarmed with his new condition, and wished something done, if possible. I directed the use of copious emollient and mucilaginous injections, which were thrown up with a large syringe to the amount of six or seven pints twice a-day, and when up, his abdomen was agitated with the palm of the hand, whilst his body lay partly in an inverted position. These injections

were followed, sometimes with large doses of castor-oil, and sometimes with jalap. The injections were repeated twice a-day, and the cathartics almost as often, for about eight days, when we all became discouraged, as we did not seem to alter, in the least, the condition of the metallic ball. The taking of crude mercury was suggested, but none of us having much confidence in it, it was not used.

When I had no further care of this case, I sometimes saw the patient. I examined his abdomen two or three times within two or three years after this, and the same appearances were discoverable. His friends informed me that no change had taken place on his leaving Woodstock, in Vermont, in the spring of 1820. He then travelled in a waggon to St. Charles, in Missouri, and there became sick, and died in about six weeks after the attack, of the fever of the climate, in October following. I was curious to find out of his friends, whether they had understood he suffered from the metallic ball, who said, it was stated in general terms, that "it troubled him considerably in his sickness." He could endure riding in a waggon slowly, as the weight rested on his thighs, in a sitting posture.

It may be worthy of remark, that, as soon as this patient became alarmed with his new condition, he made no further complaint of worms. He gradually assumed more the attitude of a healthy subject—attended occasionally to business—gained more strength, and forgot his former hypochondriasm.

I very much regret his case was not demonstrated by dissection. Possibly some physician at St. Charles may afford information of it. I satisfied my own mind by supposing, that the weight of the metal formed a bag or sac, with an open mouth, where it lodged, giving room for the contents of the bowels to pass, perhaps, in contact, but that its own cohesion prevented any diminution, &c.

Thus it seems that about a pound of amalgam of tin and mercury, was retained in the bowels of a man about four years and a half, without proving mortal, unless some misinformation be given from St. Charles, and the general health of the subject becoming rather improved.

REVIEWS.

ART. X. *Versuche ueber die Wege, auf welchen Substanzen aus dem Magen und Darmkanal ins Blut gelangen; ueber die Ferkichtung der Milz und die geheimen Harn-Wege.* Von T. TIEDEMANN und L. GMELIN, Professoren in Heidelberg. Pp. 119, 8vo. Heidelberg, 1820.*

THIS is a work of no common merit. It contains an account of an able investigation of some of the most interesting questions in physiology; and the results are so clearly stated, that, in the following article, we have had nothing more to do than to select, translate, and connect the various results as given by the authors themselves.

The question, which some physiologists have again agitated, whether there are any other means of communication than that of the *thoracic duct*, by which nourishment and medicines can pass from the intestinal canal into the mass of the blood, is of equal importance, both to physiology and the art of healing. To answer it new experiments were required; for the grounds on which physiologists have stated that absorption takes place by the roots of the vena portæ, render it only probable, and cannot be regarded as proving it. To ascertain the fact, Professors Tiedemann and Gmelin resolved on instituting a set of experiments with carnivorous and graminivorous animals; namely, dogs and horses.

In these experiments the animals had different substances given to them, the presence of which might be easily known by their colour, their smell, or by some chemical qualities. The chyle of the thoracic duct and of the lacteal vessels,

* As it is not likely that we shall soon meet with the work itself, we are induced, on account of its very interesting nature, to depart from our general rule, and present our readers with a review of it from the Edinburgh Medical and Surgical Journal. EDITOR.

the blood of the mesenteric veins, of the splenic vein, and of the vena portæ, as well as of other blood-vessels, were taken out and chemically examined. The chyle was then compared with the blood taken from these different sources, and the different kinds of blood were compared with one another, in order to answer the following questions :

1. What substances are taken up from the intestinal canal, and poured by the lacteals into the thoracic duct?

2. Do certain substances appear simultaneously in the thoracic duct and in the blood of the mesenteric veins, of the splenic vein, and of the vena portæ?

3. Do certain substances appear only in the blood of the vessels connected with the vena portæ, and not at all in the chyle of the thoracic duct?

In the course of these experiments our authors were led to inquire into the functions of the spleen, and into the supposed secret passages of the urine, which, at the beginning of their experiments, they had no intention of doing.

The series of experiments was made in the presence of the most distinguished pupils of the School of Heidelberg. In the valuable volume before us they are first described singly in detail, and afterwards the various conclusions derived from them are analytically stated.

The experiments are apparently only sixteen in number, but in reality much more numerous, as various substances remarkable for their smell, taste, colour, or chemical action, were given to the same animal, and at various periods before it was killed to ascertain the results.

The first set of conclusions indicates the places of the alimentary canal, in which the various substances given by the mouth were found after death. The object was, to ascertain the quantity of them successively absorbed in the stomach, duodenum, and other portions of the gut; and in this respect the results relating to odorous, colouring, and saline substances, are separately stated.

The odorous substances employed were camphor, musk, alcohol, oil of turpentine, garlic, and assafætida; and it appears from the experiments that these substances gradually

disappeared in the small intestines, while, on the contrary, colouring substances, even where they were given at the same time, were found farther down in the intestinal canal. The opinion of those physiologists who assume that alcohol is totally absorbed in the stomach, is wrong; for, in these experiments, it was still observed in the small intestines.

The colouring substances given were indigo, sap-green, gamboge, madder, rhubarb, alkanet, and tincture of litmus, and these observations show that several colouring substances, namely, indigo, madder, rhubarb, and gamboge, are not destroyed, either in the stomach or in the intestinal canal, and that the greater part of them passes off with the excrement. Portions of these substances which are absorbed from the intestinal canal, were again detected by their peculiar colour in the urine, but not in the chyle of the lacteals, or of the thoracic duct; they appeared, on the contrary, in the serum of the blood of the vena portæ.

It is worthy of remark, that the tincture of litmus and of alkanet became red in the stomach and intestinal canal, which therefore proves the predominating acid property of the gastric juice, denied by several eminent physiologists. In numerous experiments on the properties of the gastric juice of dogs, cats, rabbits, and horses, our authors have repeatedly found that it acts like an acid. The chyme, when transferred into the duodenum, also displayed acidity, and coloured tincture of litmus red. On passing further on through the small intestines, its acidity gradually disappeared. It is, however, remarkable, that the liquid which is plentifully separated in the *intestinum cæcum* coloured the tincture of litmus red. This intestine appears therefore to supply the place of a stomach, in which the portion of the food not dissolved in the stomach and intestinal canal is again mixed with an acid solvent, to effect its perfect liquidity and solution. The fluid separated in the gizzards of fowls has the same effect. According to the experiments of our authors, it colours tincture of litmus red. The gastric juice of frogs does the same. It results

from chemical experiments on the nature of the gastric juice, in which our authors are still engaged, that in this substance there are two different acids, one volatile and the other fixed. The former is probably the acetic acid, the latter the acid of milk.

The salts employed were prussiate of potass, sulphuro-prussiate of potass, muriate of barytes, muriate and sulphate of iron, acetate of lead, acetate and prussiate of quicksilver. A great portion of these earthy and metallic salts appears to pass off with the fæces; different salts of this kind, when absorbed, show themselves in the urine; a very few are met with in the chyle of the thoracic duct; several, however, are found in the blood of the mesenteric veins, and of the vena portæ.

The next set of conclusions relates to the passage of various substances into the chyle, as ascertained by the examination of the chyle taken from the lacteals and thoracic duct.

The colouring substances given to the animals never passed, as such, into the chyle of the thoracic duct, for our authors could not in any one experiment detect their presence, either by their colour or by the aid of chemical tests. Neither did they ever show themselves in the lacteals, or in the chyle taken from them.

These results contradict several of the results of the experiments of the older physiologists. Martin Lister* and Musgrave† said, that in their experiments on dogs, they found, after giving indigo, the chyle of the thoracic duct, or of the lacteals, coloured blue. Baller, Gould, and Fœlix, pretend to have seen the same thing. Even in J. Hunter's experiments, colouring substances are said to have passed from the intestinal canal into the absorbents. Haller‡ and Blumenbach,§ who repeated Lister's and Musgrave's experiments with indigo, affirm they obtained the

* Philosophical Transactions for the year 1701, p. 819.

† Ibid. p. 996.

‡ Elera. *Physiol. T. vii.* p. 62.

§ *Instit. Physiol.* p. 357.

same results. Viridet* and Mattei are even of opinion that the chyle of the thoracic duct was coloured yellow after they had fed animals on the yelk of eggs, and red after feeding them on beet root. But Hallé,† who made many experiments on dogs, in order to ascertain if the chyle of the thoracic duct was coloured by matters mixed with the food, never perceived any change of colour effected in this way. Neither could Magendie‡ observe any such change in the chyle of dogs, to which he had given indigo, rhu-barb, madder, and saffron.

Our authors, therefore, express doubts as to the experiments made by the older physiologists, and think it probable either that they were not sufficiently cautious and correct in performing their experiments, or that they suffer themselves to be deceived.

Smelling substances, like the colouring matters, were not observed in the chyle, either of the thoracic duct, or of the absorbents of the intestinal canal. Dumas, Magendie, and Flandrin, who also gave animals odoriferous substances, such as camphor, alcohol, and assafœtida, were never able to observe the smell of any of these substances in the chyle of the thoracic duct.

In regard to saline substances the result was not uniform. Lead, mercury, baryta, were not found in the chyle in any of the experiments in which they were employed. In the chyle of a horse which had got sulphate of iron, some iron was detected, but none in that of two dogs which got the muriate and sulphate. Prussiate of potass occurred in the chyle of one dog, but not in that of another; and sulphuro-prussiate of potass appeared in the chyle of a dog to which it was given.

Perhaps it may be objected to these experiments, that the colouring, smelling, and saline substances given to the animals, were actually taken up by the lacteals, and already

* Tractat. Med. Phys. de Prima Coctione, p. 280.

Fourcroy, Systeme des Connaiss. Chim. t. x. p. 66.

† Physiol. t. 2. p. 157.

poured into the blood-vessels through the thoracic duct, and, consequently, at the time when the chyle was examined, they were no longer to be found in it. This objection can have no weight; for in every case there was found in the stomachs and intestinal canals of the animals, when killed, abundance of these substances, which was consequently still exposed to the action of the lacteals.

On the whole, it follows that the lacteals chiefly take up the digested and dissolved portions of alimentary matters, and convey them as chyle through the thoracic duct to the blood-vessels. Smelling and colouring substances are not absorbed by them. Saline and metallic substances appear to be taken up by the lacteals only as an exception to the general rule; nor does the occurrence of saline substances in the chyle of the thoracic duct prove that they were taken up by the lacteals, for they might have been absorbed from the secreted urine, in which they soon show themselves.

But as it is a fact, that several colouring matters, such as indigo, rhubarb, madder, and gamboge, appear in secreted fluids,—for example, in the urine; and that smelling substances, such as camphor, musk, garlic, and others, which are taken into the stomach and intestinal canal, impart their smell to the exhalation from the skin and the lungs; we are immediately forced to conclude, that there must be some other way than the thoracic duct, by which substances pass from the intestinal canal into the mass of the blood, and from this into the secretory organs.

The next set of conclusions relate to the vital phenomena of the thoracic duct and lymphatics.

The thoracic duct possesses a living contractile power; for when it is tied and punctured, the chyle springs out like the blood from an opened vein. This appearance is not a consequence of the mere elasticity of the sides of the duct, as Mascagni, Bichat, and others supposed, but is the effect of a living, contractile power. This is evident, because, in a certain time after death, the chyle does not spout out of the thoracic duct when tied and pierced, but merely exudes from it. It therefore follows, that the re-

action of the sides of the thoracic duct, on the fluid it contains, depends on life, and disappears soon after death. The same phenomena were observed in the absorbent vessels of the intestinal canal, in those of the thigh, loins, and other parts. Immediately after the death of the animal, the chyle and lymph spouted out of these vessels when they were punctured. Some time after death, however, the liquor they contained merely exuded from them.

Several physiologists explain this appearance, by supposing that the sides of the absorbents possess irritability. This opinion is in some measure supported by the visible contraction of the thoracic duct, and other absorbents, when exposed to the effect of the air. In opposition to this, however, it is remarked by our authors, that in these and other experiments formerly made, they never could perceive any contraction of the absorbents, when exposed to mechanical or chemical exciting causes, as happens with muscular substances. Sulphuric acid alone, when applied to absorbents laid bare, causes a contraction, as it does in arteries and veins; but it is doubtful, however, if this phenomenon be not the consequence of a chemical action on the coats of the vessels; for absorbents, arteries, and veins, which our authors had preserved in spirit of wine for a year, visibly contracted in the same manner, on the application of sulphuric acid.

Our authors, therefore, think themselves justified in ascribing to the absorbents, arteries, and veins, and also to the excretory ducts of several glands, a living, contractile power, different from irritability, by which the fluids they contain, such as the chyle, the lymph, the blood, and the fluids secreted from it, are propelled. These fluids keep the vessels in a forced state of extension, and the living, contractile power of the coats of the vessel re-acts on the fluid, and propels it forward. Dr. Tiedemann informs us in a note, that he will explain himself more fully on this subject in a separate treatise, intended to contain the experiments which he has made on the manifestations of life in the arteries and veins of animals.

The fourth set of results relate to the observations made on the blood. The blood of the mesenteric veins was in some cases found to smell of the odorous substances taken into the stomach; thus of camphor in one horse, and somewhat of musk in another. The serum of the blood taken from the mesenteric vein of a horse, which had got a good deal of indigo, was of a dark yellowish green, and in that of a dog rhubarb seemed to be present. Salts given were often discovered in the blood of the mesenteric veins, as prussiate of potass, sulphuro-prussiate of potass, traces of lead and iron.

The blood of the splenic veins was the next subject of investigation. Our authors here remark at the outset, that they have not found the statement of Senac, Roloff, Hartmann, Haller, and others, that this blood does not coagulate, in any way confirmed. In all the experiments of our authors in which blood was taken from the trunk of the splenic vein, they saw it, when exposed to the action of atmospheric air, coagulate and separate into serum, and into crassamentum, containing red particles, and sinking to the bottom, like other venous blood. They therefore entirely disregard the consequence which has been deduced from the above supposed property of the splenic blood, viz. that it was of essential service in secreting the bile, and they ascribe to the splenic blood no other part in this secretion than what may arise from its being poured into the trunk of the vena portæ, and augmenting the mass of blood from which the secretion of the bile chiefly takes place.

As several of the substances given to the animals appeared in the blood of the trunk of the splenic vein, which were not detected in the chyle of the thoracic duct, some physiologists may be disposed to regard this circumstance as a proof of Sir Everard Home's* former opinion, that substances are taken up in the cardiac portion of the stomach, conveyed into the spleen, and there mixed with the blood. But, without taking into account that Sir Everard

* Philos. Transact. for the year 1807, p. 45.

retracted this opinion in consequence of his later experiments,* they observe, in opposition to it, that, in several of their experiments, precisely the same substances were found in blood taken from the coronary veins of the stomach, and from the trunk of the splenic vein. It is, therefore, probable, that the veins of the stomach generally, and consequently, also, the veins corresponding to the *vasa brevia*, which communicate with the trunk of the splenic vein, take up substances in the stomach, and in this way the presence of these same substances in the blood of the splenic vein is to be explained.

In the blood of the *vena portæ* our authors detected odorous substances, as camphor, animal empyreumatic oil, and musk, indigo, rhubarb, prussiate of potass, sulphuro-prussiate of potass, iron, lead, and baryta, either decidedly, or, at least, traces of them, and they observed commonly in the blood of the *vena portæ*, both of dogs and horses, white chyle-like streaks.

From the fact of various substances being found in blood, taken from the different mentioned veins, and not making, in general, according to these experiments, their appearance in the chyle of the thoracic duct, it follows, that this duct is not the only and exclusive channel by which substances pass from the stomach into the blood. Since colouring, smelling, and saline substances pass from the stomach and intestinal canal into the *vena portæ*, it is necessary to inquire by what way or passage this is effected, and the following are the only suppositions which can be made: Either all the lacteals do not enter the thoracic duct, and part of them joins the veins which, by their union, form the *vena portæ*, and through these substances absorbed from the stomach pass into the blood of the *vena portæ*; or substances pass directly from the stomach and intestinal canal into the veins; or, finally, both of these suppositions are true.

As to the communication between the lacteals and the *vena portæ*, it was not only supposed by several of the older

* Philos. Transact. for 1811. P. I. p. 163.

anatomists to take place, but was rendered very probable by several observations. Joh. Walæus* found, on tying the trunks of lacteals, that the chyle passed into the vena portæ; Rosen and Wallerius,† J. F. Meckel,‡ J. F. Lobstein,§ and G. C. Lindner,|| perceived, on filling the absorbents of the stomach, of the intestinal canal, and of the spleen, with quicksilver, that it passed into the vena portæ; Astley Cooper,¶ also found quicksilver in the vena portæ after injecting with it the absorbents of the mesentery.

Such a communication between the absorbents of the stomach and the intestinal canal, and the vena portæ, is, however, absolutely denied by Haller, Mascagni, Cruikshank, Lieutaud, Portal, Sömmerring, Hewson, and others. But, as happens not unfrequently in anatomy, physiology, and medicine, the authority of these celebrated men appears to have suppressed a truth. Though this assertion may appear bold to many persons, our authors feel themselves authorized to make it by later observations on this subject. Mr. Fohmann, dissector at the anatomical theatre of Heidelberg, who has long been employed in examining the secretory glands of the intestinal canal, and the absorbents, saw the quicksilver with which he had filled the absorbents of the intestinal canal of two seals, force its way into the vena portæ. In order to ascertain if such a communication also existed in other animals and in man, the absorbents of the intestinal canal of two dogs, one horse, one cow, and of three human bodies, were injected with quicksilver in the presence of our authors. In all these animals, and in the human bodies, in which the injection was begun

* *Epistolæ duæ de motu Chyli et Sanguinis ad Th. Bartholinum*, in *Bartholini Anatomia*, edit. 5, p. 789.

† *De Existentia Vasorum Absorbentium in Intestinis*. Upsal, 1731.

‡ *Nova Experimenta et Observationes de finibus venarum ac vasorum lymphaticorum*. Berlin, 1772, p. 5.

§ *De Liene*. Argentorati, 1774.

|| *De Lymphaticorum Systemate*, Hal. 1787—8.

¶ *Medical Records and Researches, selected from the Papers of a Private Medical Association*. London, 1798. Vol. I.

soon after death, and carried on with the greatest care, the quicksilver reached the branches of the mesenteric veins and the vena portæ, without any exterior force being employed. On a closer examination, it turned out that the communication of the absorbents with the veins of the intestines, took place in the mesenteric glands, and that all the veins proceeding from a gland, which was filled with quicksilver, also contained it. The communication was very quick and easy in the seals and dogs, in which the mesenteric glands, heaped together in a lump, form what is called the *pancreas asellii*. As these experiments had the same results in six animals and three human bodies, they make it very probable that there is a communication between the absorbents and the mesenteric veins in the parenchyma of the absorbent glands.

It may be objected to the preceding conclusion, that the passage of the quicksilver from the absorbents into the mesenteric veins takes place in the mesenteric glands, that the quicksilver entered into the veins in consequence of the absorbents being ruptured. But if this had been the case, both the veins and the absorbents must have been burst, which is very improbable. The explanation of this phenomenon by supposing the sides of both the veins and absorbents to be ruptured, is also contradicted by the quicksilver passing from the absorbents into the veins in every one of the bodies subjected to these experiments.

From the very probable communication of the lacteals with the mesenteric veins, our authors think themselves enabled to explain the appearance of streaks of a substance like chyle, of a whitish colour, which are perceived in the blood of the vena portæ, after taking food. This phenomenon was observed by Harvey, Swammerdam, de Bils, Menghini, J. F. Meckel, Brendel, Alexander Monro, and others. Even Cruikshank, who denies the connection of the lacteals with the veins of the intestines, acknowledges that he has often observed a chyle-like fluid in the blood of the vena portæ, though he did not know by what means it got there.

Our authors also mention, as another proof that a part of the chyle taken up by the absorbents in the intestinal canal passes into the vena portæ, the experiments made by tying the thoracic duct. G. Duverney* tied the left *subclavian* vein of a dog above the junction of the thoracic duct with this vein, and the animal lived fifteen days. Astley Cooper also tied the thoracic duct of several dogs before it enters the subclavian vein. Nine of these survived more than ten days, and no one died during the two first days after the operation, although, on dissection, the thoracic duct was found burst, and the chyle poured into the cavity of the abdomen. It is highly probable, that in these animals a portion of chyle had passed into the vena portæ, and that their lives by this means were supported for some time.

Though the appearance of chyle-like streaks in the blood of the vena portæ is explained by this connection of the absorbents with the veins of the intestines, the passage of colouring, smelling, and saline substances from the intestinal canal into the blood of the vena portæ, does not take place in the same way. This is clear from several of these experiments. The chyle which was taken out of the lacteals in the eleventh experiment, which was made on a horse, to which indigo and camphor had been given, was as devoid of blue colour as that taken from the thoracic duct, and did not smell of camphor. Chyle taken from the lacteals of a horse, to which musk and spirit of wine had been given, emitted no smell of these substances. And, finally, the chyle taken from the lacteals of a horse, to which gamboge and spirit of turpentine had been given, did not look in the least yellow, and did not smell of turpentine. As the blood of the mesenteric veins, and of the vena portæ, emitted the odour of camphor and musk in these experiments, and its serum had a yellowish-green appearance probably derived from the indigo; and, farther, as the blood of the mesenteric veins, and of the vena portæ, appeared to contain several of the other substances exhibited, which were not found in the chyle of the thoracic duct, our authors conclude that

* Mem. de l'Acad. des Sciences de Paris, 1675.

there are other channels than the thoracic duct and the absorbents connected with the veins of the intestines in the mesenteric glands, by which substances may pass from the intestinal canal into the mass of the blood. These channels can only be the *roots* of the veins of the intestines.

It follows from these experiments, that the veins of the intestines appear particularly to take up the heterogeneous substances, such as the smelling and colouring matters, the metallic and saline substances, while the absorbents of the intestinal canal rather absorb the proper nutritious matters. The examination of the blood taken from a branch of the mesenteric vein of a dog, to which sulphuro-prussiate of potass had been given, supports this opinion. This blood did not contain any chyle-like streaks, but sulphuro-prussiate of potass was perceived in it. Chyle-like streaks, however, appeared in blood taken from the trunk of the *vena portæ*.

The opinion that substances are taken up from the intestinal canal by the veins of the intestines, is farther supported by the appearance of these substances in the mass of the blood, although the thoracic duct has been previously bound up. Sir Everard Home* tied the thoracic duct in rabbits just before its junction with the subclavian vein, and then conveyed a dose of rhubarb into their stomach. On causing the animals after a short time to be killed, and their fluids examined, he found rhubarb in the urine, in the serum of the blood, and occasionally in the bile; but there was no trace of it in the chyle of the thoracic duct. It cannot, therefore, be objected, in this case, that the rhubarb had probably reached the blood-vessels through some of the side branches of the thoracic duct, which had been left untied. A. C. Mayer† also found prussiate of potass in the mass of the blood and in the urine of several animals, to which it had been given after a ligature had been applied to their thoracic ducts.

* Philosophical Transactions for the year 1811, p. I, p. 163.

† Deutsches Archiv. für die Physiologie, B. III. S. 496.

Finally, the effect of different poisons introduced into the intestinal canal, after the thoracic duct was tied, may be brought forward to support the opinion that substances are taken up by the veins. Magendie tied the thoracic duct of a dog in the neck, a little before its junction with the subclavian, and then gave it two ounces of a decoction of nux vomica, which is a strong poison for dogs. The animal died shortly afterwards, and in as little time as other dogs of which the thoracic duct had not been tied. On opening the body it was evident that this passage had been well secured, and that a double passage did not exist. On another occasion, two ounces of decoction of nux vomica were thrown into the rectum of a dog after the thoracic duct was tied. The effect was the same as if no ligature had been applied, and the animal died very speedily. As the nux vomica, like other similar poisons, so far as we know at present, only displays its pernicious effects when conveyed into the mass of the blood, and as it could not pass into this fluid by the thoracic duct in these experiments, it must have entered into it through the vena portæ.

Although, from the above reasons, it cannot be doubted that certain substances pass from the intestinal canal into the veins, yet nothing certain can be said of the manner in which they pass. Emmert* was of opinion that poisons affected the blood by penetrating through the sides of the blood-vessels, aided by some attraction of the blood itself, in the same manner as the gravitating portion of the air forces itself in breathing through the sides of the blood-vessels of the lungs. It is more probable that there are short minute branches of veins arising from the mucous membrane of the intestinal canal, which are united with the sanguiferous veins of the intestines, and that the substances are taken up by these.

As the blood of the vena portæ, with those substances taken up by means of the absorption of the veins in the in-

* Ueber die Wirkungsart der Gifte, in d. in Tübingen Blättern, B. II. St. 1. S. 83.

testinal canal, and with a part of the chyle which appears to be poured into the veins by means of absorbents within the mesenteric glands, flows through the capillary vessels of the liver, and is mixed with some of the arterial blood of the hepatic artery before it passes through the veins of the liver and the *cava inferior* into the right auricle, and as the bile is chiefly separated, as an excrementitious matter, from the blood of the vena portæ, the relative proportions of which are thus changed in a peculiar manner, we must, at the same time, regard the liver as an organ of assimilation for those substances which are taken up from the intestinal canal. The liver, into the vessels of which, in the fœtus, the blood, returning with the absorbed substances, through the umbilical veins, is in great part poured, remains thus after birth and through the whole course of life an organ in which the substances taken up in the intestinal canal, partly by the absorbents and partly by the roots of the veins, are mixed with the venous blood, in order to repair the waste of the blood. In this respect there appears a great analogy between the action of the liver in the fœtus and after birth.

The ultimate result of the experiments performed by our authors on the channels by which substances pass from the stomach and intestinal canal into the circulating mass, is this. The alimentary matters, the smelling, colouring, saline, and metallic substances taken into the stomach and intestinal canal, after being mixed with several fluids, separated from the mass of the blood to promote assimilation, such as the saliva, the gastric juice, and the bile, may pass into the mass of the blood by several channels :

1. Through the absorbents and the thoracic duct.
2. Through absorbents which are united with veins in the mesenteric glands.
3. Through the roots of the vena portæ.

Those substances which are conveyed into the sanguiferous system through the thoracic duct, as chyle, are mixed, in their passage through the mesenteric glands and the thoracic duct, with a reddish coagulating fluid, secreted from

the arterial blood in these glands, and in the spleen, which brings the chyle to resemble blood. The substances, however, which are carried to the vena portæ, are assimilated to the mass of the blood, by being mixed with venous blood, and by the change which they suffer in consequence of the secretion of the bile.

Our authors also remark, as the result of some of their experiments, that it is, in their opinion, very probable that those substances which are taken up by the absorbents from the surface of the mucous membranes of the lungs, of the urinary organs, and of the organs of generation, and by the absorbents on the outer surface of the body, and even from the parenchyme of the organs, pass into the mass of the blood, partly directly into veins in the lymphatic glands, partly, however, through the trunks of the absorbent system. The substances taken up by the absorbents are mixed, to promote assimilation with a fluid secreted from the arterial blood in the lymphatic glands, renal glands, and thyroid gland, in the same manner as the chyle receives a fluid secreted in the mesenteric glands, and in the spleen.

Our authors inform us that they are engaged in an experimental inquiry into the changes which alimentary matters undergo in their formation into chyle, and in their passage through the lymphatic system, and how they are finally assimilated to the nature of blood. To the result of these experiments we look forward with anticipation of much instruction; for our authors, in the present work, have shown themselves to possess all the qualities required for success in such investigations.

We have postponed, to another opportunity, some very ingenious remarks on the use of the spleen, and on the secrete urinary passages.

ART. XI. *On the Efficacy of Oleum Terebinthinae in Puerperal Fever.* By J. BRENNAN, M. D., Dublin.

THOUGH the frequent occurrence of puerperal fever, and its disastrous consequences to parturient women, have long engaged the serious attention of physicians and accoucheurs, its pathology seems to be still involved in great obscurity, and the usual mode of treating the disease has afforded little satisfaction, and of course commanded no unanimity of sentiment in its favour.

In this state of professional embarrassment, our author suggested an important change in the medical management of puerperal fever. But, from the eccentricity of his character, great hesitation was manifested by other practitioners, in using the novel and potent remedy recommended by him, though brought forward so confidently. Communications were, however, at length made to the physicians of the Lying-in-Hospital, Dublin, at a period, when the disease was committing great ravages within the walls of that humane and splendid institution. In consequence of those applications, Dr. Brennan was permitted to treat six of the patients agreeably to his new arrangements, under the superintendence of one of the medical men of that establishment.

To test the powers of his *chief* remedy, our author, very judiciously, selected the number from those in the most advanced stage—such indeed, as were considered hopeless cases—of which, three recovered, and three died. The lancet, it appears, had been pretty freely employed in the cases which terminated fatally—whereas, no blood was abstracted from either of those who survived. Both from anterior and subsequent observation, our author is, therefore, decidedly of opinion, that venesection ought never to be resorted to, in *any stage* of child-bed fever.

The result of these cases, tended to remove the doubts of some, and to quiet the apprehensions of other physicians, as to the *safety* of administering the new agent. But the

arrogant and indecorous manner with which Dr. Brennan ushered his discovery into public notice, naturally produced a considerable degree of hostility, which very much retarded its introduction into general practice. The lapse of time, however, a conscientious feeling of professional duty, and an ultimate conviction of its sanative powers, surmounted the obstacles and opposition, which indelicacy and indiscretion had, in the first instance, created and cherished.

Experience more enlarged, we are told, ultimately led to a belief, that the specific action of turpentine in puerperal fever, is nearly equal to that of mercury in syphilis, and chronic hepatitis. Though we are not prepared to offer any satisfactory explanation, as to the *modus operandi* of the new agent, in the treatment of this disease, we are of opinion, that so important a fact cannot be too soon, or too extensively promulgated.

The symptoms characterising puerperal fever, being strongly marked, and well known, we shall pass over that part of the subject, and enter, at once, upon the new practical treatment which promises to divest the disease of its former terrors.

As a preventive, our author recommends attention to the alvine excretion during gestation; more especially, to guard against accumulation in the intestinal canal, *immediately preceding* the contemplated accouchement. In the incipient stage of the disease, he advises the bowels to be solicited, (and not forced by any medicine which might have a tendency to increase the existing irritation) by emollient carminative injections—small doses of calomel “mixed with castor oil,” repeated at short intervals, aided by fomentation. These remedies, not acting in the course of a few hours, the peristaltic motion of the intestines, is to be excited by a table-spoonful of turpentine, and repeated *pro re nata*.

The abdomen being acutely sensitive to external pressure, turpentine should, also, be applied by friction—and when the disease has reached its acmé, the abdomen is to be covered with flannel moistened with the same. As auxi-

liaries, he recommends a continuance of the carminative oleaginous enemata, and small doses of calomel, but his *chief dependence* rests upon the exhibition and topical application of turpentine, to be repeated at the discretion of the physician.

We shall close this analysis by reporting two of the cases to which we have alluded, in our author's own words, with the double view of shewing the extent to which turpentine may be safely given in childbed-fever, and the promptness with which it acts in subduing some of the worst symptoms of this hitherto formidable disease.

"Margaret Rogers, in the inner ward of No. 7, had been bled twice, and was now sitting up, not being able to bear a supine posture—she was vomiting green and yellow bile, incessantly, and the sensibility of the abdomen was such, that she could not bear the slightest pressure of the finger upon it. I mentioned this case, and told him (Dr. Ferguson) I would wish to be allowed to treat it, who said that he considered effusion to have taken place, and as this woman was then in the rapid stage of dissolution, from which no one similarly affected ever recovered, he wanted to know what I could give her. I told him the *oleum terebinthinæ*. He started, and asked me how much? I told him a table-spoonful. As however, the woman seemed to have packed up her alls for travelling, he allowed me to give two tea-spoonsful, but said he would not stay by whilst I gave it. It was given accordingly to her in a little *cold* water and sugar.

"In about three hours after I met Dr. F., and his countenance expressed the event. He told me the woman was better—and he then had the courage to stand by at her taking a table-spoonful, which he was very much astonished did not burn her alive. Being asked what she thought it was, she replied Geneva and water. I saw her in about five hours—she had never vomited from the moment she took the first dose—her abdomen was flaccid—she lay at her ease, and I kneaded her belly with my hand, and gave it a heavy slap, to the wonder and delight of all the nurses

present. The next day the pain of her belly returning slightly, she got the turpentine, and the pains and uneasiness of the abdomen ceased, and she called for food, and said she was starved. Her pulse became weak, not that I ever found it full, and she sunk into death. This case I consider strongly favourable to the credit of the medicine, it relieved the seat of the fever, the vomiting and all the symptoms that foreboded quick dissolution. But being bled, it sunk her, for she was previously asthmatic, and came straight from the hospital for venereal patients, after a severe course of mercury. This case has been objected to me, as an unsuccessful one. I cured all I proposed to do. In the annals of midwifery I defy any man to show me such a sudden abatement of the symptoms of puerperal fever, or one case cured where the belly swelled in like manner, with green and yellow vomiting. In this case, I am confident, the bleeding caused the death of the patient."

" Mary Murray, wife to a soldier in the Fermanagh militia, was delivered on Saturday, 12th of the month. On Tuesday the fever commenced most violently. I was allowed a latitude with this woman, on account of the surprising efficacy of the medicine with Rogers. She had severe catarrh, and every time she coughed, screamed with the anguish of her belly, which was insufferably painful to the touch. I applied the turpentine externally, and gave her a table-spoonful in cold water and sugar. The next day she was free from pain, and able to eat bread and milk for breakfast. But after a drink of cold milk, she got ill as ever, and I repeated the turpentine internally, and applied it to her belly. The next day she eat stirabout, and got a relapse from cold beer, and continued very ill till Monday, when Dr. Ferguson shewed her to me as a forlorn case.—He pointed out the blackness of her hands, which he said was the sure forerunner of death, and that no woman ever recovered that had it. Dr. Hopkins saw her, and agreed with Dr. F. that she was one of the patients then moribund. Nothing was ordered for her this day, I suppose from the dreadful state

she was in. This was Monday, she was sitting up vomiting green bile: I gave her *one ounce* of the turpentine, and repeated it in an hour, and applied it to her belly. The next morning I found her asleep. On Tuesday, I gave her castor oil, tincture of senna, and two drachms of turpentine in the draught, which purged her much. On Wednesday she breakfasted on stirabout and milk: on Thursday she did the same: on Friday she sat all day at the fire: on Saturday she requested to be left in the Hospital—and on Sunday she walked home to Barrack street, with her child in her arms. This woman was never bled.”*

ART. XII. *Memoir on Angina Pectoris, which obtained the prize offered by the Medical Society of Paris.* By L. JURINE, Corresponding Member of the National Institute.

THOUGH not a very recent, this is a good essay, on a subject exceedingly interesting, and has not, we have reason to believe, been at all read or circulated in the United States—and hence, as regards us, it has all the attractions of novelty. To impart useful practical information to our readers, being our main object, we shall attempt an analysis

* We are indebted for the above Review, to an intelligent physician of this city, and though we do not coincide generally with his views, we think the article, altogether, an interesting one. The practice, which is here recommended, is repugnant to all our established notions—but it should not be condemned untried. The action of turpentine is very peculiar, and it is not absolutely absurd to suppose, that it may, in some way, counteract peritoneal inflammation, which seems to have constituted the cases of puerperal fever in which it was employed.

Nothing is more delusive than the doctrine of the unity of diseased action, and of the identity of medicinal impressions. We cure some inflammations by reduction with the directly depleting measures, while others are overcome by counteraction, at once subverting the morbid movements which are going on at the time in a part, or the whole of the system. This may be seen in the action of turpentine in burns,—in certain collyria, in ophthalmia,—in the balsam copaivæ in gonorrhœa,—in the eau medicinale in gout,—in mercury in syphilis; not to adduce other instances from the records of the Brunonian practice, which was often successfully conducted on this principle. Besides which, turpentine has been found very useful in the inflamed stomach of yellow fever, even in the early and most active stage; and also, in gonorrhœa, hæmorrhoids, &c. EDITOR.

of it, interspersed in our usual way, with some original observations and reflections.

Comparatively, *Angina Pectoris* is a new disease, having been noticed for the first time, by Heberden, about half a century ago. It is of rare occurrence, so much so, that it is indeed, doubted by some, whether it has any existence as a distinct disease. This was the opinion of the late Dr. Kuhn of this city, than whom it would be vain to seek higher authority, and of several of the foreign writers, as Berger, Elsner, Butter, Macqueen, &c.

An attack sometimes comes on without any premonition—the person being seized while walking, with a painful sensation at the sternum, extending to one or both arms, the left arm most commonly—at first, no further than the insertion of the deltoid muscle, though successively, it reaches the elbows, wrists, and extremities of the fingers. On stopping, all uneasiness vanishes. The case, however, being of long duration, and fully confirmed, this does not so suddenly or completely take place. The disease, under these circumstances, will now and then be induced, while the person is in a state of repose in bed, or it may be excited by the most trivial incidents, as coughing, speaking, straining at stool, or any mental exertion, and particularly, the vehement indulgence of passion, or by other emotions. But, by far the most common cause of an attack, is ascending a flight of stairs, or a hill, or any other height, producing, by the exertion, some disturbance of respiration, and which is more apt to occur, when the stomach is full.

To the uneasiness which we have mentioned, in the sternum and superior extremities, may be added, as appertaining to the more violent paroxysm, great anxiety, palpitations of the heart, laborious respiration, a sense of suffocation, with many other affections of this kind, which would seem to denote the immediate extinction of life.

The sensation of the chest, is described as partaking more of uneasiness than of positive pain, and though such is, probably, the general fact, still we have met with cases, where it was most violent and even agonizing, as much so,

as in any condition of suffering which we have ever witnessed. We have said, that the appearances in a vehement attack, are those of dissolution, and it is remarked, that patients under such circumstances, most always believe that they are dying.

As a general rule, it is said, that angina pectoris selects for its subjects, the middle aged—and men more than women, especially the robust and corpulent with short necks—of habits, indolent and sedentary, and very often the gouty. But it is by no means confined to individuals of the former description. In an equal number of cases, which have come under our own notice, the persons were quite otherwise—being slender,—of delicate constitutions, and valedudinary habits. By our author, nearly the same remark is made. Of the persons, says he, “who have come under my care, as many were of a spare as full habit.—I have seen,” continues he, “only one under the age of fifty, and only one woman who died of it.”

Concerning the pathology of the disease, our knowledge is not at all precise, or satisfactory. By the earlier writers on the subject, it was held to be spasmodic, though the part immediately affected, seems not to have been designated, or understood. This hypothesis is rendered probable, by the general complexion of the case—its causes, symptoms, and cure, and by its close analogy to the diseases which are confessed to be of this character. Entertaining this conviction, it is called by Darwin, *asthma dolorificum*, and by Elsner, *asthma convulsivum*. By Fothergill, it was supposed to be occasioned by obesity, and particularly a collection of fat in the chest—and sometimes, as he thinks, it may be symptomatic of water in this cavity, or in the pericardium.

It, has, however, subsequently been attempted to be shown, by the celebrated Parry, that the complaint is a species of syncope, denominated by him syncope anginosa, occasioned by an ossification of the coronary vessels.

To this opinion, it may, in general, be objected, that there is no evident connexion between the effect and the cause. That an ossification of the vessels of the heart, must be

productive of great disturbance in the animal economy, is exceedingly intelligible, but we have no reason to believe, that the peculiar agony and distress of angina pectoris, would be the consequence. The cause being permanent, the disease too, should continue at all times, with little or no abatement. But so far from this happening, we are told by our author, in which our own observations coincide, that there is often very good health in the intervals of the paroxysms. The person looks well, and eats and drinks, and performs all his functions as before, so that no one would suspect the existence of the disease. Completely, however, to confute this notion, it is only necessary to mention, that in several instances of the disease, which terminated fatally, no morbid appearances could be discerned about the heart, and even where the alleged ossifications existed, the complaint was very obscurely and indistinctly marked. Cases, indeed, are recorded by Morgagni, Senac, and Corvisart, where ossifications had no effect whatever of this kind. Yet, in despite of all this, the opinion is still supported by Jenner, Bostock, and other respectable authorities.

By a distinguished writer of our own country, Dr. Hosack, it is conjectured, that the disease proceeds from a "plethora of the blood vessels, more especially from a disproportionate accumulation in the heart and larger vessels." Considering this to be no better founded than the preceding hypothesis, we shall not enter into any detailed examination of the arguments or facts by which it is endeavoured to be sustained. It may be sufficient for our present purpose, merely to observe, that even allowing the fulness and irregularities in the circulation contended for, as the basis of the hypothesis, which we are by no means disposed to do, as uniform concomitants, these we should take to be rather the effects of previous irritation or excitement, than the cause of the disease. Do we not also know, that such a condition of the vessels can exist, without inducing angina pectoris? Were fulness and irregularity in the circulation only required, for the production of the disease,

instead of a rare, would we not have it as a daily occurrence? The fact, moreover, is, that angina pectoris, though oftener attacking the plethoric, is sometimes to be met with, as we have before said, in the feeble and attenuated.

Notwithstanding the number of dissections made in the disease, no distinct light has been shed upon it, owing to the great diversity in the phenomena. We are told, that in several instances, not the slightest morbid appearances could be traced. But sometimes, the heart has been found diseased by ossification—or enlarged with effusions into the pericardium, or depositions of adipose matter, &c. The morbid phenomena, in other cases, have been found in other parts, the heart being perfectly healthy—such as water in the chest—an abscess in the mediastinum—membranous adhesions of the lungs—scirrhus of the liver, &c.

Taking every thing into view, our author is led to consider the disease as a nervous affection, which opinion he supports by a long train of reasoning. Comprised in a few words, his arguments are deduced from the unexpectedness of the attack—its suddenness of termination in death or restoration to health—the nature of the exciting causes of a paroxysm—the equality and regularity of the pulse—the freedom in respiration—the painful sensation extending to the upper extremities—and finally, the method of cure, by antispasmodics, &c.

The proximate cause, says he, is connected with an affection of the pulmonary nerves, which disturbs the functions of the lungs—impairs the oxygenation of the blood—and produces, previously to an attack, the pain in the sternum. This morbid affection of the pulmonary nerves, must in time be communicated to the cardiac plexus, and affect the heart and vessels secondarily. The imperfect oxygenation of the blood, lessens its stimulating powers on the heart and lungs—gives rise to reiterated attacks, until this stimulus being exhausted, occasions the death of those organs and then of the brain.

All this is very clever, and by adopting an *arthritic con-*

dition as the remote cause of the phenomena, would be by far the most unexceptionable *rationale* hitherto advanced.

We believe the complaint, in most cases, to be gout in the stomach, extending to the lungs or heart, or both, as may happen. Time nor space will not allow of our vindicating, by any detailed inquiry, this piece of pathology. Nor, perhaps, is it required, since it does not materially change the treatment of the disease. We may, however, generally remark, that in nearly all cases, an attack is preceded, or attended by more or less derangement of the alimentary canal, manifested by flatulence—sour cructations—and costiveness, or the contrary: that the pain goes off reversely from that in which it comes on, subsiding first at the extreme point, and the paroxysm closes with belchings, &c.: that, in the intervals of the attacks, the individual enjoys, for the most part, good health, till by long continuance, the constitution becomes shattered. These are particulars in which it very closely resembles gout, and we may add, in confirmation of the stomach being the seat of the disease, that the disturbance in the functions of the lungs, or of the heart, always presents more the appearance of secondary, than primary affections.

The phenomena revealed by *post mortem* examinations, already noticed, do not in the slightest degree invalidate this hypothesis. They are, indeed, very much such as might be expected in structures, long a prey to the disorganizing influence of gout, and which have actually occurred, where there was no doubt of the existence of that very disease.

What, however, completely establishes our faith in the arthritic nature of angina pectoris, is the history of several supposed cases of that disease, which, after a long continuance with the ordinary sort of distress, and treated accordingly, terminated in unequivocal gout. These cases, which we attended in consultation with some of our most distinguished physicians, we shall hereafter lay before the public. We thought, at one period, that this view of angina pectoris was original with us. But of late, we have discovered that

Butter, in a small treatise on the subject, entertains the same notion, and accordingly denominates the complaint "*diaphragmatic gout*." Even he, we have also ascertained, has been anticipated by a German writer of the name of Schmidt, who, in conformity to his particular views of its nature, entitles it "*asthma arthriticum*."

The treatment of this disease is necessarily divided into what is proper during the paroxysm, and in the interval, in reference to a radical cure. As soon as possible, the patient is to be placed in a state of rest and tranquillity. Next, where the symptoms are urgent, and the pulse tolerably vigorous, we are to use venesection, and that it may prove effectual, the quantity of blood detracted, is to be large. Twenty or thirty ounces are to be taken at once, and we shall often find in the more violent cases, a necessity for repeating the operation, nearly to the same extent, in the course of a very short time. The fact is, that the case is sometimes of such a nature, as to admit of no delay, and, as in apoplexy and similar emergencies, a feeble and timid practice is inevitably fatal. It is, therefore, a good rule, to urge the lancet till relief is afforded, or as far as we can, consistently with safety. But should this general depletion be forbidden, or prove ineffectual, cups may be applied with great utility to the back, and a blister to the breast. The bowels are then to be opened freely, with some active purgative, as calomel and jalap.

It will be perceived, that the practice we have recommended in this disease, differs very widely from that indicated in the European writings, and in which our author concurs. By the practitioners abroad, an entirely opposite course is indeed generally adopted. Considering the complaint as spasmodic, they resort pretty much to the class of remedies, the best calculated, in their estimation, to overcome this form of diseased action, such as opium, ether, musk, camphor, &c.

No doubt, either in the incipient stage of the paroxysm, or when it is in a measure subdued by depletion, any one of these medicines will very often answer well. It is pre-

cisely what we would do under such circumstances, and have done, with the greatest advantage. Given at the very commencement of an attack, a dose of laudanum or ether, we shall find, very generally, to afford relief, and either of these articles, or the musk julep, is not less effectual after depletion. The point for which we contend is, that the paroxysm being completely formed, and of a vehement character, can only be subdued, or at least, that it is more promptly and effectually subdued by venesection, and its auxiliary evacuations, than by any other means. Yet, where the strength of the patient is greatly depressed, we must recur to venesection with circumspection, lest, in such state, the system should not react, and we might produce irreparable mischief.

To invite the disease to the extremities, is an indication never to be lost sight of at this period, and to effect the purpose, we must resort to stimulating pediluvia and sinapisms, or blisters, with all the other measures employed under similar circumstances in irregular or misplaced gout. By this course we have sometimes succeeded in affording speedy relief.

This brings us to the consideration of the remedies to be directed in the interval of the paroxysm. They are topical and general, and with the former we shall commence. Every practitioner confesses the importance of establishing some counter irritation or drain in this disease. It was formerly the custom to accomplish this by a perpetual blister to the chest. But of late the peculiar irritation from emetic tartar, seems to be preferred, and is now very generally substituted.

Yet, scarcely less is said of the efficacy of issues, introduced into the inside of the thighs, by which alone, there are recorded not fewer than eight or ten cures, proceeding too, from such authorities as M'Bride, Darwin, &c. &c.

The general remedies, consist chiefly of those tonics which are so much relied on, in all the nervous or spasmodic affections. The bark and valerian had, at one time, a high reputation. But neither these, nor any other of the

vegetable tonics, are now much used. Much more confidence is placed in the mineral articles, and especially in the preparations of copper, in the white vitriol, and the nitrate of silver. Cures are reported to have been performed by each of these medicines, and two very remarkable cases are to be met with in the *London Medical and Physical Journal*, by Dr. Cappe, in proof of the efficacy of the last.

No one of the preceding articles have we ever employed. Convinced thoroughly, of the correctness of the pathology of the disease, which we have advanced, we have always acted accordingly, in the management of the cases of it presented to our attention. The plan we pursue is, in the first place, to inculcate the importance of studiously avoiding all the exciting causes of a paroxysm—and next, to conduct the treatment exactly on those principles, and by the remedies suited to an atonic or disordered stomach, so as to do away the predisposition to spasm. It is essentially necessary, with this view, that the diet be light and digestible—that the bowels should never be constipated, and that exercise in a carriage or on horseback be moderately used. It is of consequence to recollect, that in some of these cases, when the slightest movement on foot brings on a paroxysm, or proves highly distressing, any degree of exercise may be taken, in the modes just indicated.

As respects medicines, such as are applicable to dyspepsia, will here answer equally well, and particularly the chalybeate preparations. But, where there is a strong propensity to spasm, the articles formerly mentioned may probably be called in, with advantage, though hitherto we have met with no case in which they were required.

As preventive of an attack, plethora should be guarded against, by occasional venesection, or purging, or by reduction in the mode of living, adopting the lightest possible articles of food. It is in this way, that we have managed angina pectoris, and with such success, that we cannot help recommending it, with some confidence, to imitation. Whether the cases which we have met with, were the genuine disease, we will not positively say. Certain it is, how-

ever, that they were marked by the ordinary symptoms, and considered as such, by the highest medical authority. After all, however, we are not to expect uniformly to cure this disease. Cases of it, inveterately fixed by time, are commonly attended by some organic derangement, and when this happens, they will prove wholly intractable, to any, and every form of practice.

MEDICAL AND PHILOSOPHICAL INTELLIGENCE.

ANATOMY.

Lusus Nature. By Dr. SONDERLAND.—It is the custom with French nurses to give an infant, immediately after its birth, a small quantity of sugar and water, with a view to facilitate the expulsion of the meconium. On performing this operation with the infant, whose case is here detailed, the fluid was instantly thrown out through the mouth and nostril, and nearly suffocated him. The same occurrence took place again and again, so as to lead the medical attendants to think that there existed some organic defect, or imperfect formation of the parts. In this conjecture they proved to be correct. The infant lived eight days, and died of inanition, passing every day,—but each time in diminished quantities,—both urine and fæces. On inspection, it was found that the stomach adhered to the diaphragm, by means of cellular substance; that it had no cardiac opening; that there was not the slightest vestige of an œsophagus; and, that the pharynx terminated in a *cul de sac*. No other remarkable appearance offered itself with respect to the other viscera, except that the liver was found to have a much larger volume than usual.—*Lond. Med. Intel.*

M. Ameline, Professor of Anatomy at Caen, in Normandy, has invented an anatomic model, representing the human body, of the size of nature. The first part contains the bones, which form the skeleton. 2d. The muscles, made of paper, softened, and shaped after nature, and covered with pieces of fine hemp, to imitate the fibres; the whole is painted the natural colour. 3d. To represent the veins, arteries, and nerves, fine threads, and cords of gut, are introduced, covered with coloured varnish. Lastly, real hair is fixed on, wherever it is necessary to be used. The model, on the whole, is a most ingenious invention for the elementary study of anatomy, and is so cleverly made, as to demonstrate to the student much more of the human structure, than could reasonably be conceived possible.—*Id.*

Mr. White has succeeded in demonstrating in the horse, by positive evidence, what hitherto has been believed on simple conjecture, namely, that the thyroid gland is a mucous gland, and that its excretory ducts open into the larynx. The termination of these excretory ducts, which were fully examined, thanks to a previous injection with ink, may be readily seen as minute papillary eminences, especially on the epiglottis and superior parts of the larynx. They are continued down over the rima glottidis into the trachea, especially at its posterior part, where the bronchial membrane is thrown off from the cartilages, and the intervening space is filled up with cellular membrane.

“These excretory ducts communicate with the cells in the substance of the thyroid gland, (or, more properly speaking, *glands*; for it is obviously constituted of two glands united together by a band of dense cellular texture. The division is very evident in several of the ape tribe, and in bats the two are completely separate;) and hence it is, as I shall presently show, that diseases of this gland often lead to troublesome disorders of the respiratory organs. The secretion of those glands sometimes becomes too abundant, and is also morbid in its

qualities, which, being poured into the larynx, produces irritation there, and not unfrequently ulceration, especially in the edges of the glottis; and hence the worst kinds of *roaring* arise."—*Ib.*

Dr. Tiedemann endeavours to demonstrate, that instead of the spinal marrow being a continuation or prolongation of the brain, it is the latter and the cerebellum to boot, which proceed from the spinal marrow; alias, that the brain and cerebellum are an *efflorescence* of the marrow in question.

What seems to prove the accuracy of the Doctor's doctrine, is the following series of facts:—

"1st. In the commencement of pregnancy, especially about the second month, the earliest period at which the brain can be rendered perceptible by the action of alcohol, this organ is very small in proportion to the spinal marrow. In fact, it results from the prolongation upward and forward, of the two principal chords, the olivary and pyramidal. All its superior part is open, or, more properly speaking, forms a broad gutter, which at once comprehends the third ventricle, the aqueductus sylvii, the fourth ventricle, and calamus scriptorius. This gutter is uninterruptedly continuous with the canal which traverses the whole length of the marrow.

"2dly. The cerebellum evidently originates from the spinal marrow; from the lateral parts of which arises, on each side, a small flattened chord. These two, at first so distinct and separate that they may be readily parted without laceration, afterwards unite so as to form the roof of the fourth ventricle. Then only the brain, viewed from above, ceases to represent a gutter; and the laminæ and branches of the cerebellum are formed at a much later period.

"3dly. The mass which supports the tubercula quadrigemina equally shows itself in its origin, under the form of two small thin membranes, which arise from the olivary chords of the spinal marrow, and which, when they cease to be distinct, represent a vault covering a large ventricle, whose successive contraction gives rise to the aqueductus sylvii.

"4thly. The pyramidal chords of the spinal marrow, which take a direction below upward, and from behind forward, after having produced two swellings, or ganglia, the optic thalami, and corpora striata, each terminate by a lamina, which, bent from before backward, and from the side towards the superior and internal part, forms the commencement of the hemisphere of the brain. These membranes and thin hemispheres are so small at the second month, that they scarcely cover the corpora striata. In proportion as they increase they extend backward, and cover, at the third month, the optic thalami; at the fourth, the tubercula quadrigemina; and, at the sixth or seventh, the cerebellum. The lateral ventricles result from their inversion.

"5thly. The medullary fibres of the pyramidal chords, previously to the formation of the tuber-annulare, are immediately continuous with those of the crura-cerebri; from whence the eye may readily trace them in the optic thalami, and corpora striata, and see them afterwards spreading and radiating in the hemispheres.

"6thly. The parietes of the hemispheres gradually increase in thickness in proportion as new strata of cerebral substance are deposited on their surface; and convolutions are not decidedly seen till towards the close of pregnancy."

We have been informed by a correspondent who has witnessed some of Sir W. Adams's dissections of the eye, that he has clearly demonstrated the tunica aranea

to be in no degree concerned in retaining the chrystalline lens in situ, as has hitherto been taught in our anatomical schools; but that it is so retained by a membrane of a very peculiar structure, respecting which, little, if any thing, was known in this country prior to Sir W. Adams's demonstrations at the York Hospital, three years since.—*Ib.*

Dr. Jorg, a Prussian, has preserved mummies and anatomical preparations in perfection, for several years, with the empyreumatic oil from the distillation of wood, and with pyroligneous acid. Pieces of flesh already advanced in decay, smeared once with this preparation, soon became dry and sound.—*Ib.*

PHYSIOLOGY.

The injection of fluids into the trachea was tried by Dr. Goodwin, and after him by Autenrieth and Schlaepfer,* but they took no notice of the absorption of the fluids thus injected into the lungs. The veterinary pupils at Lyons have also injected water into the lungs of horses, and have found that they can support a considerable quantity without inconvenience.

Professor Mayer read his Memoir at the meeting of the Helvetic Society, held at Zurich, and we extract our notice from the *Bibliothèque Universelle de Geneva*,† a periodical work of great merit.

I have been engaged for many years in experiments, which prove the absorption from the lungs. In 1812, I published some of them.‡ Since that time, I have made 80 experiments more on the same subject; I performed analogous experiments on the absorption from the intestines, and I found that it is much less than from the lungs. I made these experiments on various animals, viz. on rabbits, dogs, cats, goats, hedge-hogs, &c. I performed them with different coloured fluids; with the infusion of turmeric, of rhubarb, of saffron, of indigo, of madder, &c. I frequently made use of a mixture of indigo, of saffron, and of water. Lastly, I employed solutions of the prussiate of potass, of nitre, of alum, of acetate of lead, muriate of iron, oxide of arsenic, oils, &c. &c.

The following are the summary results of these experiments:

1st. Animals support a considerable quantity of liquid injected into the lungs without experiencing mortal symptoms from them. Rabbits can support a dose of four ounces and a half of water in 24 hours. But these injections should be performed by an opening made in the trachea; for if we inject these fluids by the larynx, they excite the most severe symptoms of suffocation, and the animal soon sinks under it. The suspension of respiration during this irritation of the muscles of the larynx by the injection is the only cause of death.

2d. The symptoms of suffocation which arise from injections are not serious when we inject pure water; but they become so when we take thick fluids, for example oil, which obstructs the aerial passages; or some chemical solutions, which, destroying the parenchyme of the lungs, prevent the oxydiation of the blood, and produce extravasations of blood, and inflammation in the lobes of the lungs.

* *Dissertatio Inauguralis, sistens Experimenta de effectu liquidorum quorundam medicamentosorum ad vias acriteras in corpus animale.* Auctore Schlaepfer, Praes. Autenrieth, Tubingae, 1816.

† *Bibliothèque Universelle, Sciences et Arts, Tome VII. p. 51. 8vo. Geneve, 1818.*

‡ *Dissertatio sistens Experimenta quaedam in Animalibus aqua Suffocatis Instituta.* Tubingae, 1819.

interior of the ventricle, with numerous miliary granulations scattered over its surface.

3to. In the two cases where the sero-sanguineous effusion was on the surface of the hemisphere, the arachnoid membrane was sensibly inflamed.

4to. In the two cases without effusion, the tunica arachnoidea had a dry and somewhat thickened appearance, with menbrani-form exudations.

This constant co-existence of the serous effusion, and the alteration of structure, is considered by Dr. Serres as a strong presumptive proof of their connection as cause and effect.—A great many observations of a similar kind, led him to the conviction that in this species of apoplexy, unconnected with paralysis, the effusion depends on an irritation thrown upon the pia mater or the tunica arachnoidea.

There is, our author conceives, a very great difference between the organic lesions, which attend the simple and complicated forms of this disease.—In the complicated apoplexy (that which is attended with paralysis) the *cerebral substance* is altered—cavities are discovered in the substance of the brain, filled with blood—this extravasated blood presents different appearances, according to the time that has intervened between the extravasation and the death of the patient. The parts of the brain immediately surrounding these excavations, are found red, indurated or yellowish.—From the foregoing considerations, the following conclusions are drawn—

“1mo. When an apoplectic attack presents no symptom of paralysis, we may presume that its seat is in the *meninges*, and that the substance of the brain is not dilacerated and altered.

“2do. When, on the contrary, paralysis becomes complicated with apoplexy, it is no longer the meninges, but the encephalon itself, which is the principal seat of irritation.

“3to. Serous, sanguineous, sero-sanguineous, and purulent effusions, are owing to irritation in the meninges, or the encephalon, or to rupture of arteries or veins, which may take place during the apoplexy; that is, subsequent to the irritation.

“4to. If I am not mistaken, we may very properly designate apoplexies then, in the following manner: Where there is *not* paralysis, I would call the disease *MENINGEAL APOPLEXY*; where there *is* paralysis, *CEREBRAL APOPLEXY*. On a future occasion, I shall treat of cerebellar apoplexies in a subsequent memoir. I conceive that it is possible to say, during life, which of these apoplexies we have at any time to treat—if we have a simple apoplexy, all the members will be excitable, when a proper stimulus is applied, and the seat of lesion is in the meninges.—Is there, on the contrary, hemiplegia, or any deviation from the natural posture of the mouth—then we have cerebral apoplexy.”

Meningeal apoplexy comes on slowly—its most frequent premonitory symptoms are, a torpor of the whole system; “a disinclination to mental exertions”—fatigue from the slightest exercise of the mind—“obtuse perceptions, overwhelming sleep, respiration and circulation slower than in health; vital heat below the normal point; diminution of the secretions; derangement of the digestive functions.”

If this form of apoplexy supervenes on the suppression of an habitual drain from the system, or of any cutaneous eruption; or if it comes on after some external violence inflicted on the head—such as a blow, or fall, its attack is much more sudden.—In meningeal apoplexy, according to Dr. Serres, the mouth is never distorted by being drawn to one side; and the patient lies straight in his bed—if stupor be not present, the patient will move his extremities when directed to do so.

Dr. Serres dissected 171 subjects, who died of cerebral apoplexy, attended with hemiplegia of the upper and lower extremities, and he found in *every* instance

that the disorganization was seated in the *opposite* side of the brain—when *both sides* are paralytic, the disorder is in both sides of the brain—When the paralysis extends to every part of the body, as is sometimes the case, “and the patient dies, as from asphyxia, or as animals who have the pneumo-gastric nerves of both sides divided, dissection discovers the extravasation in the substance of the tuber annulare.”

Experiments on Hydrophobia, by M. Magendie, M. D.—M. Magendie remarks, that both in animals and men labouring under Hydrophobia, the most active substances, the most powerful narcotics, have no perceptible operation. This holds good, not only as to matters taken into the stomach, but injected into the veins. For instance, he has injected into the veins of dogs that were hydrophobic large doses of opium, (ten grains) without any perceptible narcotic effect; while a single grain produced eight or ten hours of somnolency in a healthy animal of the same species. It was the same in man. M. Dupuytren and our author injected into the radial vein of a young man, in rabies canina, about eight grains of the gummy extract of opium, without any apparent result. Prussic acid was also injected into the vessels of dogs, with the same want of effect. M. M. Magendie and Breschet inoculated a healthy dog with the saliva of the young man above-mentioned, by inserting some of the fluid under the skin of the forehead. The animal became mad at the end of a month. Two dogs, bitten by the latter, became affected with hydrophobia in forty days. These last bit several other dogs, but without effect. So that, according to these experiments, the virus becomes innocuous in the third inoculation or generation. But to come to the main experiment of this paper.

The proprietor of a kind of menagerie, in Paris (*le combat des animaux*.) sent for M. Magendie to see a very large and strong bitch, in a high state of rabies. The constant agitation of the animal—hoarse and short barkings—and fierce expression of the eye, convinced our author that the animal was hydrophobic. Early next morning, M. Magendie, attended by several of his most zealous pupils, secured the animal, with some difficulty and hazard. M. Magendie then opened the left jugular vein, and drew off about sixteen ounces of blood; after which, he injected nearly forty ounces of water; during the latter part of the operation, however, permitting ten or twelve ounces of blood and water to flow from the upper part of the orifice. The injection finished, the dog was let loose into her den; and to their great surprise, coiled herself up and lay down, as if to sleep, in the most perfect state of calmness. The fierce expression of the eye was entirely gone—she did not bark, and only ground the teeth, when a stick was put in her cage. M. Magendie waited an hour, during which the animal lay perfectly quiet. Some pupils were left to watch her. About five hours afterwards, she was seized with a difficulty of breathing, which increased, and killed her in half an hour more. On dissection, the brain, spinal marrow, and all the organs, excepting the lungs, were sound. The lungs were gorged with watery blood, and the mucous membrane appeared inflamed. M. Magendie, before the fatal termination of this case, accused himself of having injected too much water, and anticipated effusion in the lungs. What led him to this experiment? It was from observing that, in artificial aqueous plethora, the various functions of the animal, especially those of the nervous system, were very evidently enfeebled. Now, in rabies, the excitement of the nervous system is carried to its utmost limit; and hence he was naturally enough led to try the sedative effects of aqueous injection and bleeding. Moreover, from the time an animal becomes mad, he ceases to drink; while the pulmonary and cutaneous transpirations are in full force. Hence, he found the blood of rabid animals

thick, and apparently without serum. Upon the whole, this experiment, though unsuccessful, holds out a ray of hope in this hitherto incurable affliction.—*Maugendie's Journal of Physiology.*

The introduction of iodine into the *materia medica*, for the specific purpose of curing bronchocele, is due to Dr. Coindet, a very experienced practitioner of Geneva. In a former memoir, published by this gentleman, he expressed a wish, that, by the joint efforts of physicians and chemists, we should one day succeed in procuring a more suitable preparation of this substance than the one now in use,—to which many objections had been urged by some practitioners.

In the present memoir he expresses his conviction that the hydriodate of potash, used externally, will answer the object required; and in support of his doctrine, he relates some cases in which this preparation of iodine was used topically, with complete success, for the removal of bronchocele and serofulous swellings.

Dr. C. directs a pomatum to be prepared for the above purpose, consisting of half a drachm of hydriodate of potash and one ounce and a half of purified hog's lard. Frictions are then made with a quantity of this preparation, of the size of a nutmeg, morning and evening, on the goitre and indurated glands, whether serofulous or situated on the breast. Occasionally, the frictions are to be practised in the course of the lymphatics, and continued till the pomatum is completely absorbed.

“Une dame âgée de 28 ans portoit depuis long-temps un goitre volumineux dans le lobe droit, mais bien plus encore dans le lobe gauche du corps thyroïde. Il s'étoit considérablement accru il y a trois ans pendant une grossesse. Je jugeai que ce n'étoit qu'une augmentation de volume sans lésion organique. Ce goitre altéroit la voix et gênoit la respiration. Après huit jours de frictions les tumeurs étoient sensiblement plus molles, la peau étoit devenue plus épaisse et plus liche; après quinze jours la diminution étoit encore plus considérable; le goitre étoit divisé en plusieurs petits lobules très-distincts les uns des autres; au bout d'un mois il a entièrement disparu, la voix et la respiration sont redevenues naturelles, sans que la malade ait éprouvé aucun autre effet sensible de l'action de ce remède.”

Twenty-two other patients, afflicted with the same malady, were treated much in a similar manner; one half of whom have been completely cured, and the remainder considerably relieved. Dr. Coindet observed, on these occasions, that the iodine, thus thrown into the system by absorption, produced exactly the same beneficial results, as when taken internally; and when no organic lesion is present, the disease of the lymphatic system seems to be acted upon by the iodine, applied externally, with an energy equal to that attributed to the internal remedy.

In none of the cases in which this application was used, did there appear any untoward effect, such as the iodine, taken internally, is known to have given rise to; though Dr. Coindet thought it necessary to use as much precaution as if he had administered the medicine internally. The author takes this opportunity of remarking, that many local auxiliaries should be resorted to in the case of goitre, by which its removal or cure will be greatly accelerated: amongst these, he reckons leeches and emollient fomentations.

Dr. C. next tried the hydriodate of potash, as a topical application in serofulous indurated glands; and the success he obtained was beyond his expectation. He, however, prefers, in such cases, the solution of what he calls the ioduretted hydriodate of potash, taken internally. The following indications of two successful cases will be read with interest:—

“Une jeune fille âgée de dix-sept ans portoit depuis quinze mois sous l’angle de la mâchoire et le long du cou des paquets de glandes scrophuleuses, dont une d’elles, la plus basse restoit ulcérée. On avoit inutilement fait un grand nombre de remèdes; je prescrivis une solution d’hydriodate de potasse iodurée, dans l’espace de six semaines toutes les glandes se sont dissipées suivant la marche que je viens d’indiquer, excepté celle qui étoit ulcérée. Une fistule pénétrant dans son centre a nécessité un traitement chirurgical pour compléter la guérison. Une autre jeune fille âgée de quatorze ans portoit depuis six mois le long du cou un paquet de glandes engorgées; on avoit inutilement fait tous les remèdes généraux et locaux indiqués en pareil cas; dans l’espace d’un mois l’usage de la solution d’hydriodate de potasse iodurée a suffi pour la guérir.”

In some few instances the medicine, administered both internally and externally, seemed to fail.

It does certainly appear that iodine is a most powerful agent, and one which possesses a specific and stimulating power over the lymphatic system.—As such, it might perhaps be given alternately, or in combination, with mercury. In enlargements of the ovaria, one would think it a useful remedy; but care must be had not to administer it where fever is present, or during the period of excitement.

For the information of those who may feel disposed to give this remedy a trial, we have deemed it proper to subjoin a formula for the preparation of the hydriodate of potash, with which we have been favoured by Dr. Granville, who begs us to add, that this salt is found ready formed in the kelp for the preparation of soda.

“Make a solution of caustic potash, add a sufficient quantity of iodine, and shake the bottle well: the water is thus decomposed—iodic and hydriodic acid are formed, each of which combines with a proportion of the potash,—the former giving rise to an iodate which is little soluble, and consequently is precipitated,—while the latter forms the hydriodate of which we are in search, and which is highly soluble. The liquid containing it, is then to be filtered, and the residue washed with alcohol, of the density of 0.82, so as to obtain another portion of the hydriodate—to be added to the former liquid, which may be set to crystallize. The salt is deliquescent, and has a slight yellowish tinge: it consists of 100 of hydriodic acid, and 37.426 of potash.”

Thenard observes, that by the process of crystallization, as well as by desiccation, the hydriodate of potash is changed into an ioduret of potassium. If so, the salt employed by Coindet, must need become a hydriodate during its trituration with the hog’s lard,—the hydrogen of which it attracts, to form hydriodic acid.—*London Med. Intel.*

Opium.—In our account of Messrs. Magendie and Robiquet’s experiments on opium, we stated, that they had come to the conclusion, that the salt which Derosne discovered in that substance, and which is considered as distinct from morphine, acts as a stimulant, or rather as an irritating substance, possessing, at the same time, narcotic principles,—while the morphia is the real anodyne of the opium. This conclusion being in opposition to those of Orfila, the latter chemist has undertaken several new experiments, in order to settle the question, and he has thus ascertained,—1. That opium owes its venemous qualities to the morphia as well as to the salt of Derosne, which it contains. 2. That these two compounds act differently on the animal economy. 3. That the known action of opium is the result of the combination of these two compounds. 4. That the toxic

qualities of opium must be principally attributed to the morphine,—since the extract, deprived of the salt of Derosne, kills the animals in the same space of time as the common extract. 5. That the conclusions drawn by Messrs. Magendie and Robiquet, respecting the individual action of the two compounds in question, are incorrect.—*Ib.*

Mercury.—Dr. Davies thinks, that for internal use, the less mercury is changed by fire, and the less it contains of mineral or vegetable acids, (provided it be sufficiently oxydated to produce the proper effects on the constitution,) the better it will be fitted for eradicating diseases.

He therefore recommends the following formulæ for milder and safer preparations of mercury than those in common use:—

CONFECTIO HYDRARGYRI.

“R Hydrargyri purificati,
Mannæ optimæ,* partes æquales,
Tere Hydrargyrum cum Mannâ donec globuli visum
fugerint ut fiat Confectio.

PULVIS HYDRARGYRI.

“R Confectionis Hydrargyri,
Pulveris Glycyrrhizæ, partes æquales,
Mft. Pulvis signatur Pulvis Hydrargyri.

SOLUTIO HYDRARGYRI.

“R Confectionis Hydrargyri, grana triginta duo.
Mucilaginis gummi acaciæ, fluidunciam,
Syrupi, fluidrachmas sex,
Aquæ Cinnamomi, fluidrachmas duas,
Signatur solutio Hydrargyri.”—*Ib.*

Dr. Chomel having obtained a large quantity of the sulphates of quinine and cinchonine from Pelletier, proceeded to try their action in intermittent fevers, under the following restrictions.

1. The medicine was used, only where the ague was quite apparent, and well characterized by its various symptoms.
2. It was used, only where nothing seemed to announce that the fever was likely soon to disappear of its own accord.
3. It was given, only in cases where the paroxysms had occurred, at least twice or three times after the admission of the patient into the hospital.
4. When a purgative, an emetic, or bleeding, had already been prescribed, Dr. Chomel waited to see the effects of these remedial agents upon the fever, before he administered the sulphates. In one instance, an ague was put an end to by an emetic.
5. The sulphates were given dissolved in a couple of table spoonfuls of water.
6. The first dose employed was from six to eight grains, in the majority of cases, and double that quantity in others. In more obstinate cases, the first dose was considerably larger.
7. The medicine was taken on an empty stomach, and no food was allowed till some hours afterwards.
8. The same precautions were observed with regard to the use of the sulphates, that are generally observed with respect to bark; and for the most part, the patients drank a solution of an acidulated syrup in the course of the day.

“* Molasses or treacle may, I think, be advantageously substituted for the manna; as the former does not undergo decomposition.”

Dr. Chomel next relates the different cases of intermittent fever, in which he administered the new medicine. These were thirteen in number, ten of which were cured, two slightly relieved, and the third remained as before. Of the ten cases cured by the sulphate of quinine, five were cured by the first, and five after the second dose. In two instances, the sulphate of quinine, employed after the use of the grey bark, seemed to act with greater energy. In the three cases in which the sulphate of quinine appeared to have no effect, the bark itself failed to give relief.—*Ib.*

It is announced in the *Journal de Medicine Pratique* of Berlin, that the *Beladonna* is a preservative against scarlet fever. This fact was first noticed at Leipsic, but it has lately been confirmed by several experiments.—*Ib.*

In the February number of the *Bibliothèque Universelle*, there is a second memoir of Dr. Coindet, on the subject of the use of iodine in "goitre." This practitioner endeavours to explain the numerous cases in which that preparation was known to have produced injurious results, and enters more fully into the mode of administering it, and the precautions necessary to be observed during its use. It appears that the magistrates of the Pays de Vaud, have subjected the use of iodine to certain salutary restrictions. Since Dr. Coindet first announced this new remedy for Bronchocele, 140 ounces of iodine have been sold by the various chemists and druggists at Geneva.—*Ib.*

Dr. Pertier, a German physician, states, that he has found the spirit of harts-horn, (in the dose of a small tea-spoonful in a glass of water,) to counteract the inebriating effects of fermented liquors and spirits.—*Ib.*

SURGERY.

RIBES on Fistula in ano.—Dr. Ribes informs us that more than twenty years ago, he announced his intention of making a series of researches for the purpose of ascertaining the precise seat of the internal orifice of the fistula in ano. It seems that his attention was first drawn to the subject by finding that the venerable Sabatier was in the habit of using the cannulated director and bistoury alone in his operations in this disease, contrary to the opinion of Dessault. In answer to the objections which were urged to him of the difficulty of operating in those cases where he could not find the internal orifice, or when the orifice was beyond the length of the finger, or when the intestine was denuded very high up, or when the fistula was of great extent, with these two instruments alone,—he replied, "that during forty years which he had dedicated to practical surgery, he had operated on a large number of fistule in ano, both in the Hospital of Invalids, and in Paris; that he had never found any difficulty in the operation; that he had always found the internal orifice to lie near the margin of the anus; that the cannulated director had constantly answered his purpose; and that, finally, this operation appeared to him to be so excellent and simple, that it would be difficult to invent a better.

"If," added he, "the internal orifice of the fistula were placed beyond the reach of the finger, a circumstance undoubtedly of extremely rare occurrence, for I have never yet met with one at this distance, it would be necessary to treat it with deference, and only employ gentle means, because we could not in such

case perform an operation, but at the risk of subjecting the patient to deadly hæmorrhages.

"Sometimes, it is true," continued he, "that we cannot find the internal orifice of the fistula, nor can we get the director into the rectum by this opening, and it has been advised in this case, especially if the intestines be denuded, to pierce it at the highest possible distance, and to make an incision the whole length of the denudation; and also, that though the sinus remains on one of the sides of the incision, yet it is pretended that a cure will nevertheless take place.

"I am of opinion," said he, "that any person acting thus cannot obtain the desired success; because the disease must necessarily be subject to a relapse, seeing that the source of the moisture proceeding from the excrement, and gradually draining itself into the cells of the cellular membrane, is not obliterated. In such case, when the canula will not pass into the rectum by the internal orifice of the fistula, my advice is, that the operation be delayed a while. It will probably not be long before we arrive directly into the intestine, and then perform our operation with certainty of success."

Dr. Ribes informs us that he has devoted much time for the purpose of testing the truth of these doctrines, and as the result of his investigations he informs us that in ninety-nine cases in the hundred this disease is cured by piles.

"After having carefully examined and verified the state of the parts in the large number of dead bodies, which have fallen under my researches during the space of twenty-five years, I have met with seventy-five having had fistula in ano, but who had died of other diseases.

"I endeavoured in the first place, to ascertain correctly, the precise situation where the internal orifice was seated; secondly, the course most ordinarily followed in the march of the fistulæ; and what were the parts through which they travelled.

"So far as respects the situation of the internal orifice, I have the most commonly found it a little above the place where the union is effected between the membrane lining the rectum and the external skin; sometimes also, a little higher up; but the opening is never seated above five or six lines high; at least in every one of the seventy-five dead subjects in which I have found fistula, I have never found one internal orifice to exceed this height, and in a certain number, it was at most only three or four lines up. The opening itself appeared as if ragged or torn; in the greater number it was soft, but hard and callous in a few.

"The idea so generally prevalent, that the internal orifice is very high up, has led the surgeon to direct the end of his probe too high, and the number of attempts to pass it forward, have corresponded with the supposed extent of the denudation. Moreover, the cellular texture of these parts is of so lax a structure, that it is easily, in most cases, penetrated by the stylet or probe; hence, the more easily these instruments pass upwards, the higher up we are disposed to think the internal orifice to be placed; whereas, in that case, it must be a chance indeed, if we find it."—*Quart. Jour. of Foreign Med. and Surg. Vol. 11.*

M. Van Dam, surgeon at Alkmaar, performed the Cæsarean operation, in December last, on the wife of J. Hoek, aged thirty years, who had been seized two years and a half before with labour pains at the full term of her pregnancy, when, after many ineffectual efforts, the uterine contractions ceased, and she no longer felt the movements of the child. From that moment the patient experienced more or less pain in the uterine region; which at last increased to such a degree that

tier life was considered to be in danger, unless immediately relieved. It was under these circumstances that the operation was performed, by which the skeleton of a child was removed from within the womb, the mother recovering in a short time afterwards.—*Lond. Med. Intel.*

Professor Walker, in a memoir on bronchocele, has proposed to cure this disease by means of ligatures applied to the superior thyroideal arteries. The Professor contends for the existence of four distinct species of bronchocele, namely, the *inflammatory*, the *aneurismatic*, the *lymphatic*, and the *scirrhus*. In the two latter cases, he admits that the burnt sponge, the seton, or the caustic may be of use; but he asserts that they are absolutely useless in goitres dependent on inflammatory action, or the aneurismatical dilatation of the thyroideal vessels.—*Id.*

CHEMISTRY.

M. Brandes has given the name of *Daturium* to a substance supposed to be an alkali obtained by him from the seeds of the *Daturium Stramonium*. It is combined in the seeds with malic acid, and is separated in the usual manner. In water and in cold alcohol it is nearly insoluble; but it is soluble in hot alcohol, from which it precipitates in flocculi on cooling. It crystallizes with difficulty in quadrangular needles. It forms neutral salts with acids, but requires to be added in great quantity. Its sulphate is crystallizable, soluble in water, efflorescent, and decomposed by fixed alkalies; the muriate forms square plates easily soluble in water: the nitrate is crystalline and soluble: the acetate deliquescent. It acts on iodine in the manner of other alkalies, but freely.—*Id.*

Hyoscyama is extracted from the *Hyoscyamus niger*, and is not easily altered even by a red heat. It crystallizes in long prisms, and forms very characteristic salts when saturated with sulphuric or with nitric acid.

Great caution is required in examining the constituent alkaline principles of narcotic plants, as their poisonous properties reside concentrated in the alkaline substance. The vapour is very injurious to the eyes, and the most minute fragment placed on the tongue is highly dangerous.—*Id.*

The name of *Atropia* is given to an alkali, found by M. Brandes in the *Belladonna Atropia*, which owes its peculiar properties to this substance. It is white, shining, crystallizes in long needles, insipid, and little soluble in water or in alcohol; forms regular salts with the acids, and neutralizes a considerable quantity of them. The sulphate of *Atropia* contains

Atropia	38.93
Sulphuric acid	36.52
Water	24.55

100.00

When mixed with potash and raised to a red heat, if mingled with muriate of iron it produces a brilliant red colour.—*Id.*

A new alkaline body, possessing singular properties, has been announced to the world by the younger Brugnatelli, who has called it *apyre*, from its prominent faculty of resisting the action of fire. It combines readily with the acid, particu-

larly with sulphuric acid, with which it forms a neutral sulphate, concrete and white. It also unites, with considerable energy, with iodines and phosphorus. Its acid solutions give a blue precipitate, by means of prussiate of potash.—*Ib.*

A speedy and simple method of procuring ice has been proposed by M. Grothus, which consists in pouring, very gently, a given quantity of æther over an equal quantity of water contained in a metal vase, so as not to mix the two liquids. If the vase be placed under the receiver of the air pump, and the air pumped out, the æther will first enter into ebullition, and be totally evaporated in less than a minute afterwards, while the water is converted into ice. The experiment was performed under the temperature of 160 R. of Reaumur.—*Ib.*

American Intelligence.

A new Instrument for Cataract.—Professor Gibson* has lately invented an instrument, exceedingly well calculated for cutting to pieces the crystalline lens, in all cases of cataract. It is well known, that the knives of Saunders, Sir William Adams, and other oculists, are defective, in not being sufficiently strong and sharp to divide the lens, when it happens to be of a very hard texture. Under such circumstances, the cataract is soon dislocated, in the attempt to divide it by the knife, and is either depressed into the vitreous humour, or else enucleated from its capsule. To obviate these inconveniences, Dr. Gibson has contrived a scissor so delicate, as hardly to exceed, in size, the iris knife of Sir William Adams, and, at the same time, so strong and sharp as to cut, with ease, the most solid and compact lens and capsule, without injuring, in the slightest degree, any part of the eye. These scissors are formed upon the principle of Mr. Woolaston's scissors, used for common purposes—with the edge so constructed as to operate like a knife. On this account, the instrument perforates the coats of the eye with the utmost facility, and when introduced, the blades can be opened to a certain extent, so as to cut the lens to pieces, without bruising it or any other part—the necessary effect of scissors, as they are usually made. This instrument possesses another advantage—the lens is supported in its natural situation during the operation, by having one blade behind, and the other before it, so that it may be cut to pieces, in situ, and its remains afterwards forced, by the shut blades, into the anterior chamber, for dissolution. In this way the operations of Saunders and Adams may be performed with great effect, and without that necessity for repetition which so often occurs, when the common instruments are employed. Dr. Gibson has made trials with the instrument, sufficient to convince him of its decided superiority over every other used for the same purpose.

* Of the University of Pennsylvania.

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Detecting the Various

IONS.

IN LONDON.

TESTS.

cal sulphate of copper added to solutions of
for the most part a beautiful grass green
if dissolved in wine the precipitate would

hydrogen precipitates arsenic from tea of a
colour.

When, gelatine, and bile containing arsenic in
of silver produces a white precipitate.

co-nitrate of silver produces a yellow precipitate.
nitric acid and ammonia; but the presence
phosphates, or their acids, renders this test

tain test is the reduction of the metal, by
ied suspected matter in a glass tube, with
charcoal and potash, when, if arsenic be pre-
sente quantity, it will be sublimed and adhere
the tube, in the form of a shining metallic

Antimony is precipitated from its solution of an
brownish red colour by sulphureted hydro-
sulphurets; white, by sulphuric acid, alkali-
arytes waters. Alkaline and earthy neutral
it, but salts with excess of acid do. Infusion
a copious whitish yellow precipitate.

Muriatic is a dark heavy fluid, to which if water be
precipitate is formed.

soluble in muriatic acid, forming the muriate.
ations of antimony are readily reduced to the
calcination with charcoal and potash.

GLASS

1. The first part of the document is a list of names and addresses of the members of the committee.

No. II.

TESTS.

ate boiled with distilled water is decomposed; part ipitated as a *sub* nitrate, and part remaining dis-
g a *super* nitrate; this solution is colourless, red-
paper, and the hydro-sulphurets produce a black
alphuret of bismuth. The *sub* nitrate is soluble with
t in nitric acid, from which the alkalies precipitate
xyd, which is easily reduced by calcination.

of copper are mostly of a bright green or blue
are easily reduced by charcoal at an elevated
e. The sulphate is partly decomposed by alkalies
e earths. Potash precipitates a *sub*-sulphate of a
r from it.

added to solution of any cupreous salt, gives a
enish precipitate, according to the quantity; but
excess, it re-dissolves the precipitate, and forms
transparent solution.

FO

C

FIG:

of gold is decomposed by nitrate of silver. A mu-
ver is precipitated of a reddish brown colour,
ps to some oxyd of gold being carried down with
added to the precipitate dissolves all the muriate
d leaves the oxyd of gold of a beautiful canary
ir.

silver is precipitated white by muriate of soda,
phosphate and chromate of soda; if placed on
s it animates them, leaving a coating of silver;
h charcoal and potash the silver is reduced to
state.

ate precipitates gold from its solution of a purple
itself precipitated of a bright yellow colour by
alcoholic infusion of galls. Albumen and gelatin
opious flocculent precipitate.

may be volatilized by heat, is soluble in nitric
es with earths by fusion, and with fixed alkalies
l; it is easily reduced by calcination.

1. The first part of the document is a list of names and dates, which appears to be a record of some kind. The names are written in a cursive script, and the dates are in a more formal, printed style. The list is organized into two columns, with names on the left and dates on the right. The names are: John Smith, James Brown, and William Jones. The dates are: 1810, 1811, and 1812.

2.

3. The second part of the document is a list of names and dates, which appears to be a record of some kind. The names are written in a cursive script, and the dates are in a more formal, printed style. The list is organized into two columns, with names on the left and dates on the right. The names are: John Smith, James Brown, and William Jones. The dates are: 1810, 1811, and 1812.

No. III.

PO TESTS.

mate is precipitated white by potash and ammonia; white by the alkaline hydro-sulphurets, and by the chromate of lead.

soluble; easily reduced by calcination with charcoal

WHIT

Calculations of lead are easily reduced to the metallic state by calcination with charcoal.

Sulphate dissolved in water is precipitated white by ammonia; of a canary yellow colour by chromate of potash; these precipitates being easily reduced by the chromate of lead. The alkaline sulphurets precipitate the lead of a blackish colour.

CAE

OR W

WINES S

Mercurials heated to redness in a glass tube are decomposed, the quicksilver being volatilized.

Muriate is precipitated white by ammonia, and of an orange colour by lime water;

soluble; a copious dark brown precipitate is formed, mixed with cold water, a white flocculent

precipitate is formed, mixed with cold water, a white flocculent

nitric oxyds may be dissolved in muriatic acid into sublimate.

soluble in water or muriatic acid; but is reduced by heat.



No. IV.

TESTS.

ic acid is known by its great weight, by evolving mixed with water; by emitting no fumes. If banded to it a sulphate is formed, which is insoluble in nitric acid.

acid emits orange coloured fumes upon adding cop and is changed blue by it; if potash be added a nitrated which deflagrates when thrown on burning clothes the skin yellow.

acid emits pungent fumes; if nitrate of silver be added, a very white precipitate is formed of muriate of silver in ammonia, but not in nitric acid.

acid precipitates lime and all its salts from water, the precipitate being soluble in nitric, but not in excess of it. Exposed to heat it volatilizes, leaving but little residue. It is decomposed by sulphuric acid becoming brown; heated by heat and nitric acid and rendered yellow; nitric acid dissolves it with heat and decomposes it.

nitric acid precipitates barytes and lime waters, the precipitates being soluble in nitric acid; it is decomposed by heat at a high temperature, evolving carbonic acid and nitric acid being sublimed.

acid exhales white vapours, not unlike those of muriatic acid; heat is evolved with a hissing noise when water is added to it; it dissolves glass.

acid produces a precipitate from lime water, so in excess of acid, and in nitric also; with potash it forms a neutral and a super-salt; it does not precipitate silver, but its salts do.

acid has a strong odour of bitter almonds, and is found in that fruit, and in the leaves of the peach and the cherry. It is soluble in alcohol, but hardly in water, and is precipitated from its solution by nitrate of silver.

These acids have many properties in common; their solutions on being touched, change to green vegetable reds and yellows to brown; remain transparent when carbonic acid is added to them, which distinguishes them from the solutions of the alkaline earths, barytes, strontian and lime. Silver is precipitated by them in form of a dark precipitate, soluble in nitric acid.

Soda and soda may be distinguished from each other by their solutions to dryness; potash will become dry, absorbing water from the air, while soda will remain moist. Ammonia is known by its pungent smell.

POI	TESTS.
-----	--------

ALKALIN e changes vegetable blues to green, and is
by carbonic and oxalic acid, while no
on it by sulphuric acid; its salts are de-
fixed alkalies which precipitate the lime,
ta.

BAR Ldergoes changes similar to lime when water
acts like it on vegetable colours; it does
acids. Sulphuric acid, and all the sulphates
of it, produce a white precipitate, insol-
PURE nitric acid.

CARB trytes is insoluble in water, but dissolves in
acid, with effervescence.

MU trytes dissolved in water, is not changed by
its carbonate, as well as all other alkaline
down a white precipitate, which is carbo-

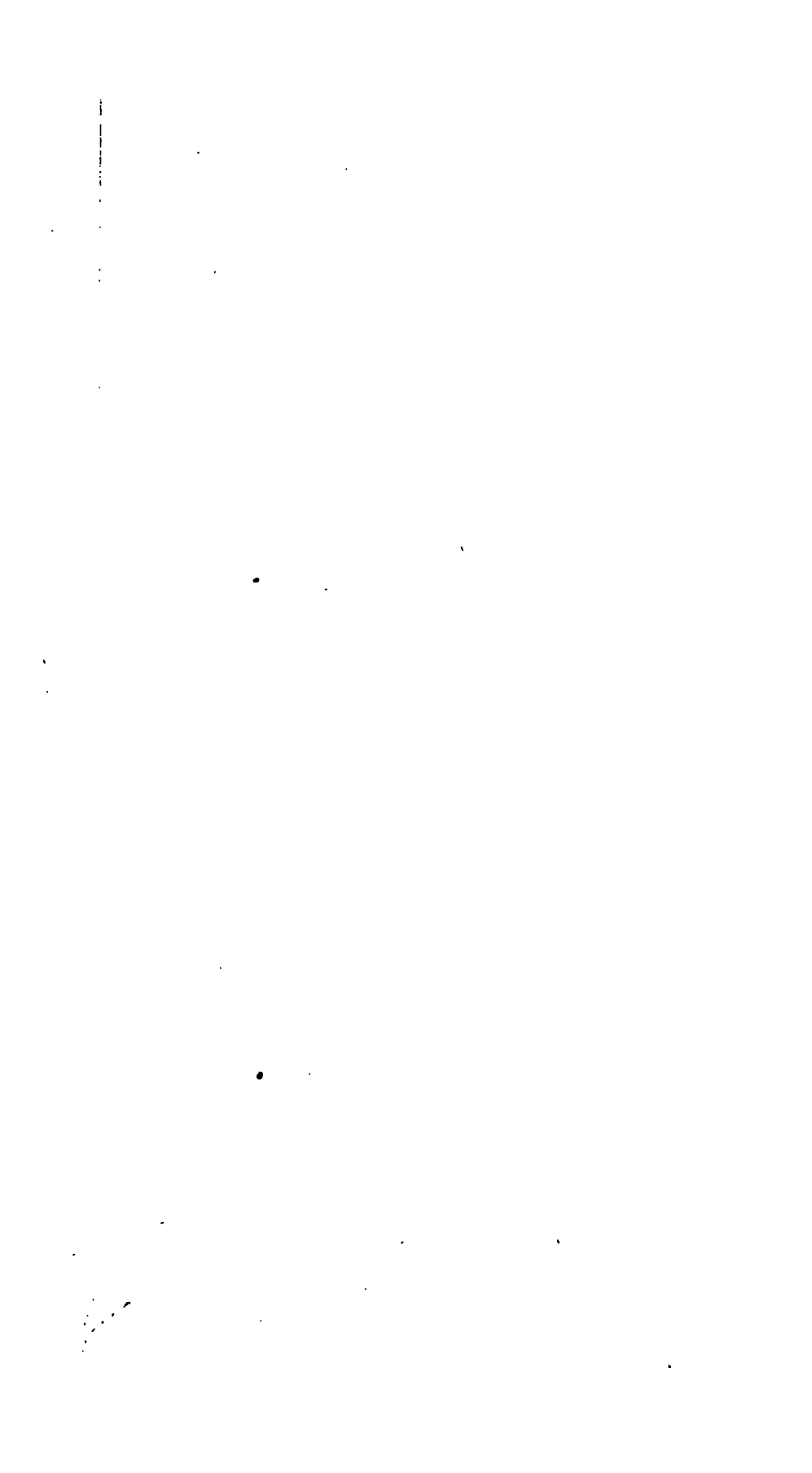
thrown on burning coals, it crackles, and
white flame; if powdered, and sulphuric
NIPON it, it gives out white vapours; both
es distinguish it from Glauber's salt. It is
SALT high temperature, affording oxygen gas.

nonia is soon volatilized if placed on hot
with quick lime, it gives out the odour of
MU tion of it in water is precipitated white
OF AN of nitrate of silver.

SAL A:

PHOS r the rejected contents of the stomach after
be boiled in a retort, having its beak under
tion of caustic potash, phosphorated hy-
ned, which explodes with a green flame as
the surface of the water.

GLASS



No. VI.

TESTS.

SPI



TREATMENT.

- Aconitum, if vomiting has been occasioned by the poison, and
 *Anemone, if the vomits are still continued, they may be rendered
 *Arum by large draughts of warm water, or thin gruel;
 *Bryonia, if symptoms of insensibility have come on without
 Callicoca, it ought to be immediately excited by the
 *Chelidonium of zinc, or some other active emetic sub-
 *Clematis, and after its operation a sharp purgative
 *Colchicum, to be given. After as much as possible of the
 Convolvulus got rid of, a very strong infusion of coffee,
 Cucumis, diluted with water, may be given with ad-
 *Daphne. Camphor mixture with æther may be taken
 *Daphne, and if insensibility be considerable,
 Delphinium, frictions, and blisters, may be employed. If
 Euphorbia, or other dangerous consequences have
 Fritillaria, ensued, they are to be treated upon general
 Gratiola.
 *Hydrocotyle, if the Fewillea Cordifolia has been lately
 *Helleborus, used as a powerful antidote against vegeta-
 *Helleborus; it is to be used in as recent a state as
 Juniperus
 Lobelia
 Momordica
 *Narcissus
 *Oenanthe
 *Phellandrium
 *Pedicularis
 *Ranunculus
 *
 *
 Rhododendron
 Rhus toxicaria
 Ricinus
 *Sedum album
 *Sempervivum
 Scilla maritima
 Stalagmum
 Veratrum
 *Viola tricolor

TREATMENT.

- *Acte the stomach to be effectually evacuated, by giving
 *Æthu or five grains of tartar emetic, or from ten to
 *Ariste of the sulphate of zinc, and repeat it every
 *Atropie of an hour, till the full effect is produced.
 *Cicut the means may be assisted by tickling the throat
 *Conia a feather, or the finger. Large and strong glysters
 *Datu ap dissolved in water, or of salt and gruel, should
 *Digit eedily administered, to clear the bowels and as-
 *Ervu in getting rid of the poison, and active purgatives
 *Hyos be given after the vomiting has ceased. When
 *Lactu ch as possible of the poison has been expelled,
 *Lauratient may drink, alternately, a tea cup full of
 *Laurg hot infusion of coffee, and vinegar diluted with
 *Loliu If the drowsiness, which is sometimes extreme,
 *Meni he insensibility bordering on apoplexy, be not re-
 *Nico ted by these means, blood may be taken from the
 *Papa ar vein, blisters may be applied to the neck and
 *Paris and the attention roused by every means possi-
 *Sola if the heat declines, warmth and frictions must
 *Strye severingly used. Vegetable acids are on no ac-
 to be given *before* the poison is expelled, and
 desirable that but little fluid of any kind should
 ven.

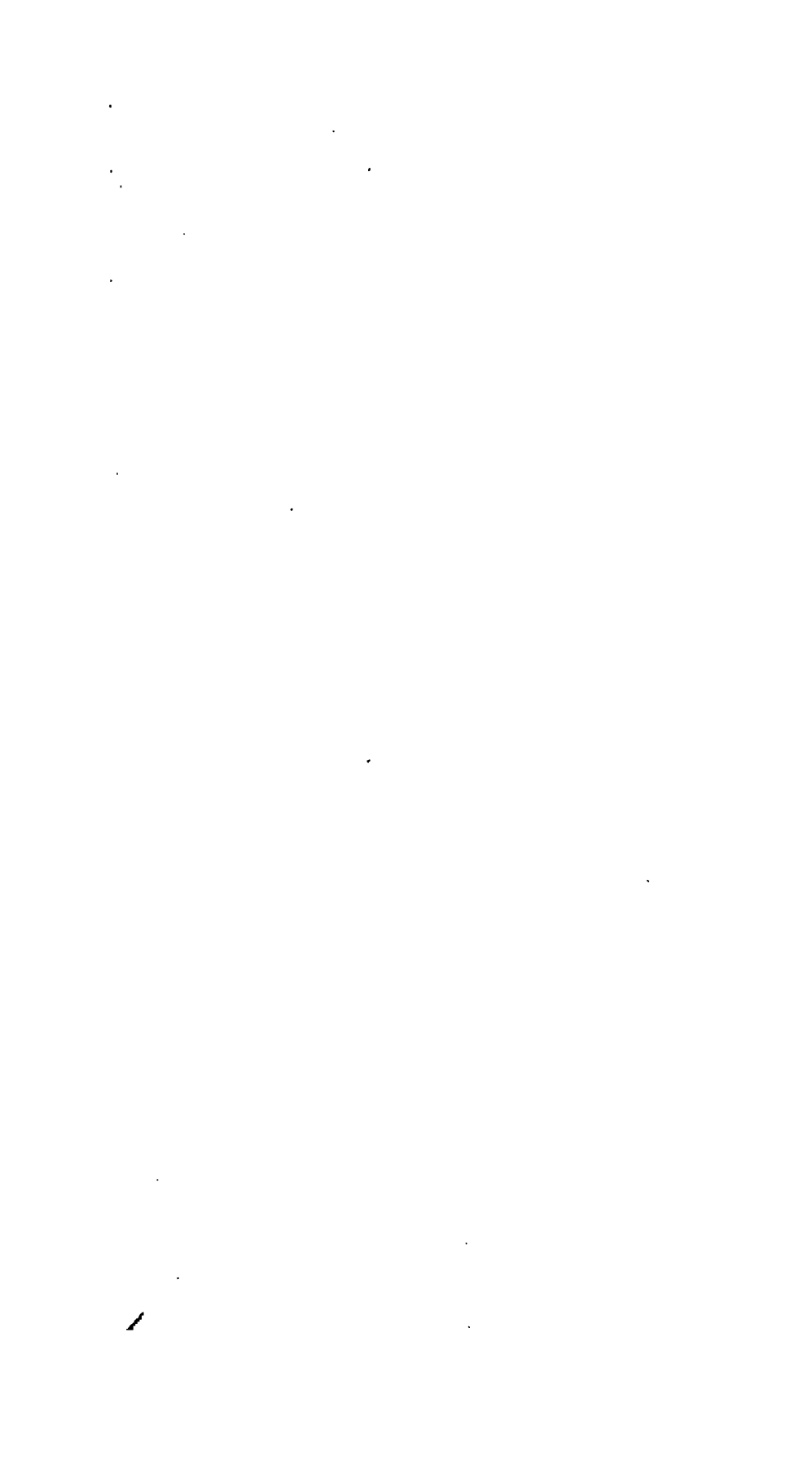
the stomach and bowels to be first cleared by an
 c of tartarized antimony, followed by frequent
 of Glauber's or Epsom salt, and large stimulat-
 ysters. After the poison is evacuated, æther may
 ministered with small quantities of brandy and
 Agaric but if inflammatory symptoms manifest them-
 s, such stimuli should be omitted, and other ap-
 piate means had recourse to.

TREATMENT.

Balistes emetic should be speedily administered, or in Cancer absence of it, the vomiting may be excited, by ——— the throat with the finger, and taking large Clupea lbs of warm water. After full vomiting, an active Coracinuse should be given to remove any of the nox-Coracinuetter that may have found its way into the in-Coryphæ. Vinegar and water may be drank after the Mormyramedies have operated, and the body may be Muræna t with the same. Water made very sweet with Mytilus e, which æther may be added, may be drank Ostracions a corrective, and a very weak solution of al-Perca ma been recommended, to obviate the effects of Perca venon. If spasm ensue, after evacuations, lauda-Perca ven considerable doses, is necessary. If inflamma-Scomber ould occur, the usual means of removing it Scomber employed.

Sparus ch
Tetrodon
Tetrodon

derately tight ligature to be applied above
, and the wound left to bleed after being well
with warm water; the actual cautery, lunar
Coluber b or butter of antimony, to be then applied
Coluber p it, and afterwards covered with lint, dipped
Coluber n parts of olive oil and spirit of hartshorn. The
Crotalus to be removed if the inflammation be consi-
Cobra de Warm diluting drinks, and small doses of
Coluber c or hartshorn to cause perspiration; to be
Gedi Partered in bed, and a little warm wine given
Ratuka Rally. If gangrene be threatened, wine may be
Rodroo Pre freely, and the bark should be had recourse
nic, the principal ingredient in the Tanjore
been strongly recommended.



TREATMENT.

nitig to be excited by drinking sweet oil, sugar water, milk, or linseed tea very freely. Emolglysters should be administered, and if symp- of inflammation of the stomach, kidney, or blad- pervene, they must be subdued by appropriate ent.

phor dissolved in oil may be rubbed over the and on the thighs.

shorn and oil may be rubbed on the affected Tarantula and a piece of rag moistened in the same, or in Scorpio d water, may be kept upon it till the pain is Vespa *cra*ld. A few drops of hartshorn may be given fre- Vespa *vulg*, in a little water, and a glass or two of wine Apis *melli* taken. The sting may in general be removed Culex *pip*ing strong pressure over it with the barrel of a Oestrus *bo*atch key.

ophobia is more easily prevented than cured, it is doubtful if it ever has been cured. Mer- rsenic, opium, musk, camphor, acids, wine, le and mineral alkali, oil, various herbs, and ther remedies, whose effects are quite oppo- ve been employed, but none can be relied on. blood-lettings, the warm and cold bath, and every other remedial agent, have been tried success.

itten part should be completely cut out, even has healed, if the symptoms have not yet ; the part should then be immersed in warm r washed with it as long as it will bleed, and ; most persevering ablution caustic should be to every part of the surface, and then the overed with a poultice, and suffered to heal lations.

ilder discipline can ensure safety.



To Subscribers.

Agreeably to the terms of publication, the amount of subscription for the second year (five dollars) is due upon completion of this number. The publishers therefore request that the subscribers will embrace the earliest opportunity to forward it.

February 11, 1822.



CONTENTS.

- I. An Account of an Epidemic Fever, which prevailed among the Negroes of Philadelphia, in the year 1821. Read before the Philadelphia Academy of Medicine, by G. Emerson, M. D., 193
- II. Reflections on the Treatment of Fractures of the Thigh, with an Account of a new Apparatus.—By William Gibson, M. D. Professor of Surgery in the University of Pennsylvania, 217
- III. Observations on Mania à Potu. By James M. Staughton, M. D., 238
- IV. An Analysis of an Amorphous Garnet, from New Jersey, and of Fetid Sulphate of Barytes, from Albemarle county, Virginia. By Henry Seybert, of Philadelphia, 247
- V. An Account of the Yellow Fever of Charleston, South Carolina, as it appeared in the year 1817. By Henry Dickson, M. D., 250
- VI. Report of the Committee of the Academy of Medicine of Philadelphia, on the means by which Absorption is effected, 273
- VII. Thoughts on Sympathy, in a Letter from Charles Caldwell, M. D. to N. Chapman, M. D., 302
- VIII. Historical and Critical Observations on Syphilis. By A. J. L. Jourdan, M. D. Translated from the French, by R. La Roche, M. D., 324
- IX. An Account of Dr. Broussais's Doctrine of Fevers. By Joseph G. Nancrede, M. D., 345
- X. Observations on the Cause, Character, and Treatment of the Intermittent Fever, as it appeared in the neighbourhood of the Schuylkill, in the Autumns of 1820 and 1821. By William Harris, M. D. (Read before the Academy of Medicine of Philadelphia.) 355
- XI. Case of a very extraordinary affection of the Bowels. Communicated by R. La Roche, M. D., 369

REVIEWS.

XII. Rapport fait au Conseil General des Hospices, par un de ses membres, sur l'état des hopitaux, des hospices, et des secours a domicile, a Paris, depuis le 1er Janvier 1804, jusqu'au 1er Janvier 1814. A Paris. Madame Huzard, 1816. 4to. pp. 391.

Compte rendu par le Conseil General des Hopitaux et Hospices civils de Paris, du service de ses Etablissemens, pendant le 1er Semetre de 1814, et jusqu'au 1er Janvier 1815: et de l'emploi des dons faits par les habitans de Paris. A Paris. Madame Huzard, 1815, 4to. pp. 75. 383

XIII. Practical Observations on Midwifery, with a selection of Cases. Part I. By John Ramsbotham, M. D. Lecturer on Midwifery, &c. &c. London. 399

XIV. A Dictionary of Chemistry, on the basis of Mr. Nicholson's, in which the principles of the science are investigated anew, and its applications to the Phenomena of Nature, Medicine, Mineralogy, Agriculture, and Manufactures, detailed. By Andrew Ure, M. D. Professor of the Andersonian Institution, &c. &c. With an Introductory Dissertation, containing instructions for converting the alphabetical arrangement into a systematic order of study. 411

Medical and Philosophical Intelligence, 417

TO READERS AND CORRESPONDENTS.

1. We wish it to be distinctly understood, that we neither have, nor will receive, any pecuniary compensation as Editor of this Journal. The motives which led us to engage in the enterprize, are announced in our prospectus, and which will be found liberal, and wholly disinterested. To this subject attention is now called, with a request, that communications for the work, and all matters of correspondence relative to it, may be addressed to the publishers, Messrs. H. C. Carey & I. Lea, Booksellers, Philadelphia.

2. In the list of friends by whom this Journal is sustained, we include one, who has promised hereafter to take a more open and responsible share in conducting it. We allude to Dr. Benjamin H. Coates of this City, already advantageously known to many by his writings. He will bring to the undertaking the energy of genius, much literary taste, the habits of elaborate research, and no inconsiderable share of curious and valuable erudition.

3. The present number of the Journal is much increased in size, and we trust with matter of superior interest. This improvement was called for by the unexampled extent of the subscriptions, and the punctuality with which payments have been made. To the article on Absorption, we wish particularly to call attention, as one, in our opinion, of the highest order of merit. The same able and enterprizing experimentalists, are soon to resume their inquiries into some other parts of physiology, and we are proud to state, that this Journal will be the vehicle, of communications of the result of their labours to the public.

4. We have received from Dr. Dean, and Dr. Little, statements of their respective claims to the original use of mercurial ointment in the cure of Erysipelatous inflammation, supported by such testimonials, as are usually resorted to in controversies of this nature. Believing, that the public take no interest in disputes mainly personal, we decline publishing in *extenso* the documents, as requested. The pages of this Journal must not be sullied, and particularly by attacks on character which we believe to be pure and honourable. It is, however, our duty to declare, and we have much satisfaction in being able to do so, that after a careful perusal of the whole of the evidence submitted to us, we see no reason to suspect, that either party derived the suggestion of the remedy from the other, or has felt any disposition to practice injustice in the case. We hope, that our friends will now terminate a controversy, from which they may be persuaded, no advantage can result, and again cordially unite, as they formerly did, with such success, to elevate the character and promote the great ends of the profession.

5. We are in possession of several communications, which shall appear in our next number. In the name of the Printers and our own dim optics, we implore our correspondents to write *legibly*. The inconvenience to which we are sometimes exposed, from negligence in this respect, is scarcely to be conceived. We have, in particular, one most valuable contributor, who may truly say, with the Irishman in the Farce, that he "writes all sorts of *writing* but *hand writing*!"

6. The Medical Students now in the University of Pennsylvania, exceed four hundred, the largest class for the last three seasons.



To promote the interest of Mr. Desilver, a worthy bookseller, who has at great expense re-published Ure's Chemical Dictionary, we are induced to insert, as an advertisement, the following testimonials to the merits of the work. To these he might have added others quite as strong, from Brande's Journal, &c.

of the Royal Institution, of London; from Tilloch's Philosophical Magazine; and from several of the scientific Journals of Paris, which we have met with. We pretend to no great skill ourselves in determining the merits of writings on such subjects. But the estimate of the work, contained in the review which we have given in the present number of the Journal, may be trusted, as coming from the pen of one of the most enlightened, and authoritative of our chemical philosophers.—*Editor.*

“By the specimen which we have now placed under the observation of our readers, they will be prepared to estimate the merits of this scientific dictionary. We may be allowed in conclusion, to state the impression it has left on our minds. The work, then, *in our opinion, is unrivalled.* Theory, in general, has been rejected from its pages—its doctrines and practical views, are based on the results of experimental induction—and its style is, in a particular manner, significant, perspicuous, elegant. We, therefore, do cherish an agreeable anticipation of the excellence of Dr. Ure's forth-coming system of Chemical Philosophy.”—*Johnson's London Medico-Chirurgical Review, for September, 1821.*

“This volume, being closely printed in a very small type, comprises every thing that is to be expected in such a work. A considerable proportion of it is re-written by Dr. Ure—but few articles have not experienced some alteration—and whatever is the production of his pen, is characterized by that perspicuous conciseness of manner, for which his writings are remarkable. He evidently has a great facility for abstractive analysis, and this has enabled him to present a very great extent of information—much beyond what might have been expected in the space of this Dictionary. This production, altogether, presents a very favourable augury of what the author might accomplish in a Treatise on Chemistry, were he to undertake such a work without being fettered and confined by a faulty and imperfect basis, and the plan of such an arrangement as a Dictionary.”—*London Medical and Physical Journal, for August, 1821.*

(CIRCULAR.)

Inquiries being frequently made of us by letter, as to the plan on which we conduct the medical education of our private pupils, we have thought that the information required, might be most conveniently transmitted through the medium of this Journal.

On the close of the session in the University, we commence with lectures on Anatomy and Surgery, the Theory and Practice of Physic, and Materia Medica, and on Midwifery. When any particular subject is concluded, of any one of the branches, the students are interrogated, to ascertain the state of their improvement, in which examinations, errors or misapprehensions are corrected, obscurities explained, and their intelligence generally rectified as well as enlarged. As this system is pursued unremittingly throughout the year, time is afforded, for the fullest courses of lectures, and on several of the branches, these are repeated.

The student has access to one of the largest medical libraries in this country, to an ample anatomical collection, and to all that appertains to Surgery or Midwifery, which is calculated to illustrate these subjects, and, in short, to whatever will facilitate his studies, or promote the acquisition of professional knowledge.

N. CHAPMAN, M. D.

WILLIAM P. DEWEES, M. D.

WILLIAM E. HORNER, M. D.

We have great pleasure in announcing that Dr. Parish, in connexion with several of his friends, pursues precisely the same plan—and as we have reason to believe, with the greatest possible advantage, to a numerous class of pupils.—EDITOR.

(CIRCULAR.)

The extensive mischiefs inflicted on society by epidemic diseases, render their histories the most important and interesting documents of medical record. Invading, often, without the slightest premonition—embracing, in their afflictive range, a wide extent of country, or accumulated masses of population—

varying in symptoms and character, and requiring diversified, and even opposite modes of treatment in different periods and situations—their causes enveloped in a profound mystery, which has baffled the penetration of the most enlightened philosophers—are circumstances, that make every observation in relation to them of utility. They moreover impose on medical practitioners, as a professional and public duty, the task of studying the character and treatment of an epidemic disease, nor to permit it to pass away, without consigning the details that marked its occurrence and prevalence to a recordation in the annals of the science.

The Philadelphia Academy of Medicine, influenced by these considerations, are anxious to obtain a general and correct account from authentic sources, of the epidemic that prevailed so extensively during the past summer and autumn. As this object can alone be satisfactorily accomplished, by bringing into one relation, the observations of the practitioners located in different situations, under whose notice it fell, they have appointed the undersigned a committee for this purpose. To fulfil the laudable intention of the society, the committee respectfully request communications (which may be addressed to either of them) from those physicians in this and the adjacent states, where the disease was prevalent. They would with deference suggest the following interrogations, the answers to which will direct attention to some of the points the most material and prominent in elucidating the history of the disease.

1st. When did the disease first make its appearance—and at what period did it terminate?

2d. Is the locality subject to the same or a similar disease?

3d. Were there any circumstances of the weather or season that appeared connected with the disease as its cause, or having any influence over it?

4th. What was the type and other peculiarities of the disease?

5th. Was the character of the disease uniform from its commencement until its decline, throughout the epidemic period; or was it converted into or supplanted by some other disease?

6th. What proportion of the population was attacked with the disease, and what was the degree of mortality?

7th. Was one sex more liable to the attacks of the disease, than the other, or any particular age?

- 8th. In what subjects was it most fatal?
 9th. Were there instances of complicated intermittents?
 10th. What treatment was pursued?
 11th. Was venesection necessary?
 12th. Did emetics or purgatives answer the best remedial purpose?
 13th. What tonics were employed with the most advantage?
 14th. Were those attacked peculiarly liable to relapses?

SAMUEL JACKSON, M. D.

N. CHAPMAN, M. D.

THO. HARRIS, M. D.

THE
PHILADELPHIA JOURNAL
OF THE
MEDICAL AND PHYSICAL SCIENCES.

ART. I. *An account of an Epidemic Fever, which prevailed among the Negroes of Philadelphia, in the year 1821. Read before the Philadelphia Academy of Medicine.* By G. EMERSON, M. D.

AT the commencement of warm weather in 1820, an endemic disease of a formidable and novel character made its appearance in several parts of Philadelphia. Its inroads were chiefly confined to the south and west suburbs, where among the crowded narrow and filthy alleys, selecting the blacks for its victims, it continued till arrested by cold weather. As the first symptoms were strictly of a bilious or remittent type, always running rapidly into typhus, I think the title of typhoid-remittent well suited to express its nature. In its progress, it spared neither age nor sex;—and in some respects certainly resembled the yellow fever. But a glance at the characteristics subsequently enumerated, will, I think, when compared with those of yellow fever, satisfactorily show the distinct nature of the two diseases.

As I met with comparatively few cases in the first season of its appearance, my observations will be chiefly confined

VOL. III. 25 No. 6.

to the disease as it appeared the following year, when during my tour of duty among the patients of the City Dispensary, perhaps eight-tenths of all the cases which occurred between Chesnut and South streets, came under my care, as it hardly ever attacked those who were above the rank of charity patients. For this reason it is probable that many of our most eminent practitioners who are not attached to charitable institutions, and, whose practice lies principally among the wealthier classes of society, know but little of a disease, which, for two years, has contributed greatly to swell the obituary list of our city.

As soon as the weather became decidedly warm in 1821, the endemic of the preceding season made its appearance quite insidiously, and, with nearly the same features, ran gradually over the same ground as before. The cases were not very numerous till hot weather set in, and were greatly multiplied in the months of July and August.

Previous to surveying the causes of this disease, I wish to advert to a circumstance which constitutes one of its most interesting and singular features. I allude to its predilection for the blacks. Having, I think, had most ample opportunities of investigating this point, I can confidently assert that I met with no one case in a white person where even equivocal symptoms appeared. Among the most wretched and depraved whites, who inhabited the same alleys, houses, rooms—and were exposed to all the exciting causes, I did not see a single instance of a fever bearing any resemblance to the disease in question. That other physicians may have met with cases in whites very similar to, and perhaps difficult to discriminate from the fever of the blacks, I readily admit. That several of the attendants on the sick at the Almshouse, contracted a disease from them, I believe most true, but at the same time not difficult to account for, upon plausible and generally received principles. He who, with or without personal experience, has searched far into the annals of medicine, fairly and impartially weighing the different authorities, must be incredulous indeed if he does not admit, that in febrile disorders not originally infectious,

where many of the sick are crowded together and proper ventilation and cleanliness cannot be preserved, there is generated effluvia or a specific infectious matter capable of producing, in a healthy person sufficiently exposed to it, a similar disease. I have therefore little doubt that the whites, if in any instance, attacked with this disorder, became infected from the blacks, and should cases be cited of a similar disease among whites where no connexion with blacks could be traced, I should class them with ordinary bilious fevers terminating in typhus. The white cases I have enquired into were all more protracted, less fatal, and evinced many other distinctive marks.

The opinion that this fever was peculiar to the blacks, receives additional confirmation from an idea which originated and prevailed among the whites of the infected districts—that they were exempt from its attacks. Almost the first intimation I received of this circumstance, was derived in rather an accidental manner. A woman, whom from her looks I supposed free from African taint, but whose skin appeared tarnished by a southern sun, being slightly indisposed, applied to me for assistance at the Dispensary. As I knew she lived in a part of the town where the endemic was most prevalent, I asked her, rather idly, if she thought she had taken the *black fever*, as it was not unfrequently called. She immediately replied, that she entertained no fears of that disease, urging as a reason for her confidence that she had not a sufficiency of black blood to render her liable to it. This induced me to ask her how much black blood she had. She said her mother was half white and her father a white man. Having received her prescription, she informed me that her daughter was confined to bed with sickness, and desired me to call and see her. Inquiring how much black blood her daughter inherited, I learned that the father was a black man—and that there was consequently a preponderance of negro blood. Upon visiting this patient, I found a well marked case of the prevailing fever.

To those who may not feel disposed to admit the existence of a fever with such discriminating powers, I would put this

question: Is it more extraordinary that an endemic in 1821 should confine its ravages to the blacks, than that a disease in 1793 should almost exclusively have selected the whites for its victims? That many disorders are modified by the black constitution, and exhibit peculiarities not common to the whites, cannot, I think, have escaped the observation of those who have had sufficient opportunities of making the investigation. That the blacks are less tenacious of life in our climate than the whites, and more seldom attain longevity, are facts which may be considered as strongly favouring the supposition of a considerable difference in constitution.*

Upon the whole might we not come to the conclusion—that the feebler system of the African may succumb to causes which that of the more energetic white would be able to resist? The circumstance of the blacks being sometimes exempt, may seem to answer but does not wholly satisfy this query. This subject, too extensive for discussion here, displays an ample field for curious and interesting speculation.

In accounting for the origin of a disease distinguished by novel characteristics, it is natural for us to search out new causes. Among the most prevailing surmises was one which attributed the mischief to damaged potatoes. In consequence of the great abundance of this vegetable in 1820, the market became overstocked, and a great many were allowed to spoil in the cellars and stores near the wharves where they were deposited. These were taken home by the labouring blacks after leaving off work in the evening, for the consumption of their families, and to feed their hogs. Thus the alleys became the principal receptacles for a nuisance well calculated to do mischief in warm weather, and

* The following calculation made from the recent census, will serve to illustrate this very interesting subject.

The proportion of white males between 26 and 45 to those over 45 is as 2.12 to 1.

The proportion of coloured males of the same description is as 3.01 to 1.

The proportion of white females of the same ages is as 1.91 to 1.

That of coloured females of the same ages is as 2.49 to 1.

as this occurrence was new, and the reason it afforded plausible, it was regarded as a satisfactory explanation of the origin of the endemic, till the next season, when the same disease was observed to spring up again without the existence of the alleged cause.

I shall now proceed to survey those agents which stand most prominent in the production of this endemic. The predisponent cause, or atmospheric constitution, is a subject so intangible, and at present so obscure, that we shall not attempt to discuss it. When chemists learn to analyze the air we respire, so as to demonstrate its deleterious ingredients, we shall be bound to regard this as a matter of the highest consequence.

Upon the subject of locality it may not be amiss to state, for the information of those who have shown a disposition to identify this endemic with yellow fever, that, whether imported or sporadic, the latter disease has always made its first appearance and prevailed in the vicinity of the wharves, whereas the disease we treat of, chose a situation of a very different description. Nine-tenths of the cases I met with, were within a very narrow compass, the infected district not much exceeding the extent of one of our ordinary city squares. Hurst street being wide, paved and comparatively clean, would not, I believe, have suffered much notwithstanding its crowded population, but for its connexion with St. Mary's and M'Gilles's alleys, which, besides being confined, crowded and filthy, are *unpaved*. Upon this circumstance I would lay considerable stress, for the following reasons. In a rainy season, such as the past spring, the water, for want of common-sewers, or other well contrived channels, is compelled to pass slowly through choked-up gutters, and thus gains time to penetrate the earth, or find its way into cellars, carrying along with it an acknowledged source of noxious effluvia—vegetable and animal filth. I was particularly struck with a circumstance which I observed in Sixth street near Pine, where a cellar was cleansed of its offensive contents by order of the Board of Health. Several hogsheads of very foul water were here emptied upon the

unpaved ground, before the house; and although the depth of the court was not above an hundred feet, such were the impediments offered by heaps of rubbish, &c. that none of it gained the street. In a few hours the stream was absorbed, but the earth which received it, no doubt continued under the influence of a scorching sun to emit effluvia well calculated to injure the health of the vicinity. Having made it a point to search out for local causes when called to see new cases, I was seldom disappointed in finding water in the cellar, a foul pig-stye, or some other nuisance of the most offensive kind. In such places, not only the fixed inhabitants suffered, but transient visitors were attacked with the fever. By attentively comparing the health of the paved with the unpaved alleys, I was persuaded that the balance turned greatly in favour of the former. A small court, closely connected with one of the worst squares of the infected district, afforded a good illustration of this remark. Although each house contained at least two black families, such was the attention to cleanliness adopted by the inhabitants through precautionary views, that not a case of the disease occurred among a numerous population. The subject of miasmata is one of the greatest importance to cities and communities. A glance at its baleful influence in other parts of the world in creating or modifying diseases, may be of service in discovering the light in which it should be viewed.

Among other remote causes the contested point of *contagion* before alluded to, deserves attention, and as several illustrative facts came under my observation, I prefer detailing them to submitting at present any theoretical opinions of my own.

Whilst the prevailing endemic was raging among the blacks in the crowded and filthy alleys of the lower section of the city, a similar disease prevailed in the Penitentiary and Prune street Prison.* On the 20th of July, I was

* For an account of a disease blending the characteristics of the Bilious and Hospital fevers, see Pringle's *Diseases of the Army*—Part 3. c. iv.

called into Middle Alley, to see Isaiah Conus, a black man, whom, with his wife, and child two years old, I found labouring under symptoms of the prevailing endemic. He was however nearly convalescent from a severe illness contracted in the prison, the symptoms of which, according to his account, were like those exhibited by his wife and child. Dismissed from jail he had returned home and lain upon the same bed with his wife and child, who took sick a few days after. Middle Alley, although paved, is always crowded with blacks, and it offered nearly all other inducements to the disease. These, however, were the first cases which appeared in it. After the lapse of a few days, I was called upon to visit a family in a house directly opposite to Conus's, all the inmates of which were suffering under the same disease. As a constant intercourse had been kept up between the two families, little doubt could remain of the origin of the sickness. Had Conus been admitted into a well ventilated apartment where proper attention was bestowed upon personal and domestic cleanliness, I do not think that the infection would have extended beyond himself. But instead of this, a little room in a crowded house, where all the cooking and other family affairs were attended to, and where but one small window appeared as a ventilation, afforded a combination of circumstances well qualified to mature and spread infection. The condition of the other family was nearly parallel. As the inhabitants of the adjoining houses entertained an idea that the disease was infectious, they adopted the proper precautions, and the fever spread no further.

In another part of the town not visited by the endemic, a negro man just from prison, was admitted into the house of a woman whose family consisted of herself and two children, the oldest eight years of age. The man was indisposed when he entered the family, and in a few hours the distinct symptoms of the endemic were developed. He recovered after a severe but short illness, and was scarcely convalescent, when the woman who had nursed him was attacked with the same disease. Shortly after her recovery the

two children were seized with the same symptoms which had marked the former cases, and both died on the 6th day, their dissolution being hastened, if not entirely owing, to their rejecting every species of medicine. The mother, whose system was exhausted by a former attack, together with her attention and solicitude for her children, was again seized with her former complaint, and in about six days followed her children to the grave.

As an auxiliary cause, the excessive use of ardent spirits, so common among the class of sufferers, merits attention. No vice deserves severer reprehension than this, by which a considerable portion of the hard earnings of the poor, instead of being employed to provide wholesome nourishment, is appropriated to the purchase of a destructive poison. Besides direct and indirect debility, which pave the way to so many diseases and invariably result from excessive stimulus and impoverished diet, nothing tends more immediately to interfere with and vitiate the biliary secretion than spirituous liquors. In every unhealthy climate, particularly in the East and West Indies, where miasmata, lurking in almost every situation, embraces every opportunity of invading the system—the influence of this vice is strikingly exemplified. It hence becomes an important duty incumbent upon the officers of ships to keep their men free from this species of excess. The most wary vigilance is, however, but too often baffled by the crafty sailor. I have frequently seen the crews of ships which were notoriously dissipated, suffering from intermittents, remittents, choleras and dysenteries, whilst others, equally exposed, but more regular in their habits, remained comparatively healthy.

In the last week of August the endemic seemed to have received a check, as I had few cases then on hand of a recent date. This may have been owing to exhaustion in the sources of disease, or more probably to some inscrutable atmospheric change. The summer was unusually dry, though not remarkably hot.

The disease often made its attack insidiously; its approach being marked only by an unpleasant taste in the mouth,

along with impaired appetite and a slight yellow tinge of the eyes several days before the more violent symptoms appeared. At other times no premonitory signs could be distinguished, the onset being a fit of delirium, or other violent agitation of the system.

But the majority of cases exhibited a uniformity of aspect, seldom met with in endemics. The first or remittent stage, was ushered in by ordinary pyrexial symptoms,—languor, listlessness, rigour, succeeded soon by pain in the *occiput*, spine and limbs, tenderness and tension of the epigastrium, with nausea and sense of burning in the stomach. The pulse was small, frequent, and when full always compressible—the eyes were muddy, with a tinge of yellow, the tongue was white, and a disagreeable taste prevailed in the mouth.

The system generally reacted very soon, the cold stage seldom lasting more than an hour, when the skin became dry and parched, the external pain and internal burning of the stomach were exasperated, and great pain and stiffness in the neck ensued. The motions and secretions of the alimentary canal being increased, bile was often vomited, and bilious dejections were invariable. The irritability of the stomach went off in most cases with the first stage, and food and medicine could be retained with ease.

Within the first twenty-four hours, there was usually a slight remission, which was soon succeeded by a fresh exacerbation. On the third or fourth day, sometimes earlier, some times later, the disease began to assume a different type, and to exhibit its most formidable character. The debility, considerable from the first, now amounted to prostration, the countenance displayed an anxious cast, and mental aberration was not unfrequent. The pulse became smaller and quicker, the eyes of a deeper yellow and more muddy suffusion,*

* This yellow tinge was no doubt general, although from the natural colour of the skin it could not be perceived, except in the palms of the hands and soles of the feet. Dissection discovered it pervading the cellular membrane, and even the bony ligaments and periosteum. The serum from blisters was as might be expected, highly coloured.

the tongue covered with a brown, yellow or dark fur, and the yellow or black dejections more frequent. The pain in the occiput, neck, back and extremities was greatly aggravated, along with the gastric tenderness and sense of burning. Such, in many instances, was the extreme tenderness of the precordia and abdomen, that the patient could not bear the gentlest touch upon them without crying out. With this violent train of symptoms, the patient was often carried off on the fifth or sixth day, and the crisis was usually within the tenth day. Unlike ordinary remittents, I do not remember a single case of this fever, which terminated in an intermittent. If not arrested, it invariably ran into typhus.

Besides these usual appearances, various occasional symptoms marked the progress or termination of this fever. Coma, low delirium, subsultus tendinum, singultus, great tenderness of the integuments of the body, were, more or less of them, no unfrequent concomitants. In two instances a very black, flaky fluid was vomited, more resembling ink when in a bottle, than any other substance I could compare it to. The strongest power of the solar microscope, could discover in it no appearances of organization or animalculæ. One of the patients survived the discharge but a few hours. I saw her on the morning of her exit. She was sitting up in bed without support, and told me that she felt herself a great deal better! Her arms were then cold to the elbows, and the pulse at the wrist had ceased to beat! The other patient survived the black discharge nearly two weeks, during all which time the stomach was so irritable, that neither medicine nor food could be retained, and her strong constitution seemed to sink finally from inanition. I never met with torpidity of the bowels. On the contrary a bilious diarrhœa was almost uniformly present, and medicines acted promptly if not beneficially.

An appearance of natural fæces before a crisis, was an unfavourable symptom.

Great listlessness with undue strength and confidence, were always delusive symptoms, more especially when accompanied, as they frequently were, with a pulse almost im-

perceptible. In the worst cases; the tongue seemed to lose its flatness, becoming narrow, pointed, and red upon its edges. The drying up of blisters always denoted danger. Cold clammy sweats were common and alarming, sometimes alternating with flushes of heat. The sunk and haggard countenance was a frequent and faithful harbinger of death.

The crisis of this fever was so variable, that I could not fix upon a regular day for it. Many cases terminated in death on the sixth. The fate of most patients was decided by the tenth, but in many the disease ran on much longer.—From what I can learn, the cases were less protracted and more fatal in 1820. There was always a strong disposition to relapses, which were very fatal, and often carried off patients on the second or third day.

A general abatement of the symptoms frequently followed gentle, warm, and long continued perspiration. The dark fur on the tongue, commonly wore away from the edges, or peeled off in flakes, as convalescence approached. Along with this, a return of appetite was an auspicious symptom. The pulse almost always became remarkably slow when the disease terminated favourably.

Dissections.

From a very large mass of matter which might be introduced under the head of *dissections*, I select the following details, for which I am indebted to my friend Dr. Harlan, whose familiarity with anatomical pursuits, by rendering him less liable to deception in discriminating between morbid and natural appearances, certainly entitles his statements to great confidence. These minutes, though for the most part made in 1820, differ so little from those of the succeeding year, that it does not appear necessary to make a distinction.

“In May, 1820, I examined the body of an athletic negro, who died in the Alms-House very suddenly of a violent fever. I remarked to those present, that the appearances were uncommonly malignant for that season of the year. He had not been sick more than two days. The

mucous coat of the stomach was highly inflamed, as well as the small intestines both within and without. The liver was higher coloured than usual."

"A short time after this, I examined the brother of this patient, who died on the fourth or fifth day of his disease, which exhibited a similar train of symptoms. On dissection, the same appearances were conspicuous, though the inflammation was not so great."

"The attendant of the ward, a negro man, was now attacked with the same kind of fever, and after a protracted illness, died in a typhous state. His stomach showed remnants of inflammation.*

"Harry, a negro man who assisted us in taking the bodies from the coffins, was attacked, and after the ordinary symptoms, such as head-ache, pain in the back, hot skin and soreness of the epigastrium, died on the seventh day. His stomach was also found inflamed. Several other deaths occurred with similar symptoms."

"July 5th, 1820. I examined the body of a mulatto woman, aged about 22 years. The patient had within two weeks returned from York county, and was on a visit to her mother, her father having just died of the fever prevalent among the blacks. She was married, and about five months advanced in pregnancy. The physician who first attended, had not bled her. I did not see her until the night of her death, which took place on the seventh day of her disorder. On the night of the 6th inst. she aborted. Very little hæmorrhage ensued, but her system sunk fast after it. The symptoms when I first saw her were as follows. She lay speechless, with eyes partly closed. Skin and adnata yellow—tongue black and foul. Skin hot and dry—pain in the stomach so excessive as to make her scream violently when touched upon it. The dissection was made eight

* To avoid repetition, the morbid appearances only are noticed. Where the state of the abdominal viscera or other important organs, is not alluded to, they are supposed to exhibit no deviation from their natural structure.

hours after death. The stomach was inflamed internally, particularly at its pyloric orifice, and contained about a pint or more of black mucous matter, which must have been a vitiated secretion from the stomach, as it was very different in colour from the fluid in the gall-bladder, or substances taken in. The duodenum was still more inflamed, and the small intestines also participated. A high colour and inflamed appearance was observed in the liver. The gall-bladder contained a considerable quantity of apparently healthy bile, though rather darker than usual. The fæces in the colon were of a natural colour. No obstruction in the gall ducts.

After detailing the most prominent characteristics of the prevailing disease, which agree with those already given, Dr. Harlan goes on to state, that, "towards the latter end of August, *three* black boys, brothers, all chimney-sweeps, and from the same house, were admitted into the sugar house, an appendage to the Alms-House. No correct account of their cases could be obtained, but they were supposed to have been about two days sick when admitted. The oldest died the day after his admission. He had violent delirium, and attempted to jump out of the window. On examination, we found his stomach exceedingly inflamed, brain very much engorged, the medulla, when cut into, showing dots of blood. His stomach contained dark matter. The gall bladder was distended with healthy looking bile."

"The next brother, who was about seven years of age, died about the fifth day of his disease, with the same symptoms. On dissection we found black vomit in his stomach.* The fluid part of the blood was similar to melasses and water, the coagulum tough and white. Gall-bladder full of healthy looking bile."

* By *black vomit* in the strict phraseology of the term, we mean that peculiar fluid production of the stomach which constitutes a diagnostic of yellow fever. The black matter here spoken of, if like that which I had an opportunity of examining in the same endemic, did not in several respects resemble that of yellow fever.

"The third brother, aged about nine years, died on the seventh day of his disorder—and although he had exhibited the same set of symptoms, marks of inflammation were scarcely observable. The gall-bladder, blood, and other appearances were the same as in the latter case. These dissections were all made within six hours after death."

"The next body examined was that of an athletic negro man, who died about the ninth day of his disease. Pain in the stomach was an early and prominent symptom. The adnata was yellow, and pleasant delirium prevailed. He died soon after drinking a large bowl of coffee. The stomach contained no black matter, and was without any signs of inflammation. The bile in the gall bladder, was of the colour and consistence of tar. The blood was perfectly dissolved, and showed not the least sign of a coagulum.

"October 2d, 1820. Examined the body of a black man three hours after death—body warm. He had been four days sick in the Alms-House. A short time previous to admission, had been liberated from Prison, after a confinement of three weeks. His eyes were very yellow, and the cellular and adipose membrane were dry, and together with the omentum, tinged of the same colour. The liver was high coloured, and the bile like tar. The intestines were filled with flatus, and the stomach contained a quart of black matter, differing from any healthy secretion, from the bile, or from fluids taken in. A thick coat of mucus lined the internal membranous coat, which, when cleansed, was found inflamed. The blood in the heart coagulated after the cavities were open. May not the muscular parts of the heart and arteries have been still alive?"

"On the 23d of June, 1821, I examined the body of a young black man, who died on the eighth day of his disease. Ten hours after death, the stomach was speckled over with appearances of effusion—its blood vessels were engorged, and the villous coat covered over with black, thick mucus. The liver was high coloured, gall-bladder full of dark yellow bile, rather thicker than natural. The case throughout resembled those of the last summer."

When called to a case in time, my first object was to clear the first passages of their offensive contents, whilst the system was able to support the operation of evacuating medicines. With this view, nothing I found to answer the intention so well, as an emetic-cathartic powder, generally composed of ℥i or ʒss of ipecacuanha, and half the quantity of calomel. The good effects of this prescription, were commonly apparent very soon after its operation. It relieved the stomach from a noxious load, allayed its morbid irritability, and arrested, instead of accelerating its inverted motion. The circulation was determined from the centre to the surface, and the sympathetic pains in the head and other parts relieved. In fact, it seemed as though the whole series of morbid associations, received a salutary shock, and the system, relieved from an oppressive burthen, was enabled to bear up better against the invading disease. The alvine discharges, which before the operation of the medicine, were yellow and colliquative, afterwards became dark and even of a deep black. In several cases, this practice seemed to arrest the disease at once.

To keep up a gentle evacuation from the bowels, and thus prevent an accumulation of feculent matter, so apt to be produced in all fevers, especially those of a malignant character, small doses of calomel, of from one to three grains, repeated every second or third hour, were extremely useful. These doses combined with eight or ten grains of the nitrate of potass, as a febrifuge, had a twofold operation. With the view of producing revulsion, and rousing the system when oppressed and torpid, blisters to the epigastrium, and extremities, were next resorted to. As an application to local pains, flannel cloths dipped in warm vinegar or vinegar and water, proved very serviceable. Hot bricks steeped in vinegar, wrapped in flannel and applied warm to the various seats of pain, assisted greatly to lessen the patient's sufferings.

In the second stage, as soon as an abatement of the morbid action could be observed, recourse was had to camphor, and the decoction of *Serpentaria Virginiana*. But

if prostration quickly ensued, with or without any well marked remission, bark and volatile alkali, were the alternatives, even when the state of the tongue, and other symptoms, seemed to contra-indicate the use of the former. There was, however, no time to be lost in waiting for a moment, free from all obstacles to this powerful tonic, for the powers of the system, unless unusually strong, required support at this juncture, otherwise they inevitably sunk under so formidable a disease. When the foul fur on the tongue began to disappear, a favourable indication, always attended by a general abatement of the symptoms, the bark alone or in combination, greatly expedited the cure. In an irritable condition of the stomach or bowels, it was best when given with lime water, sometimes with the addition of a little laudanum. When a greater stimulus was needed, it was mixed with wine. To increase its tonic, and to give at the same time a gentle diaphoretic effect, it was made into a decoction with serpentaria, to which elixir of vitriol was often added. To renovate the exhausted strength of the patient, beef tea and nutritious soups, wine and porter when they could be had, were useful and grateful auxiliaries.

During my practice in this endemic, I often had the mortification to find myself baffled by the poverty of the sick, and bad faith of the attendants. Frequently, a whole family was down at the same time, and depended solely upon the disinterested kindness of neighbours. It was very common to find that medicines prescribed in the morning, had not been sent for till night, and when procured, had either not been given at all, or administered so sparingly, as to be of no use whatever. I had every reason to suppose that wine, porter and other unmixed liquors, supplied by the Dispensary, were consumed by the attendants. Another difficulty arose from the want of means to divide time, which occasioned much neglect and carelessness. These, with a variety of other circumstances, principally dependant upon the same cause, often protracted convalescence, and paved the way to relapses. Destitute of the common necessities of

life, the scanty materials often provided for food, were of the poorest and cheapest kind. I had great reason to regret the close of the winter soup-houses, which would have afforded a most grateful restorative, without which, medicine was frequently useless.

Another very important desideratum in the treatment of this disease, could not be had recourse to. I mean a change of air, so beneficial in all disorders of a similar origin. Could the patients have been removed on the first appearance of the symptoms, to some well arranged infirmary, where besides receiving proper medical aid, they could have breathed a pure air instead of inhaling the noxious atmosphere which engendered and aggravated their disorder, life might in many instances have been saved, the cases would have been less protracted, and relapses more rare.

To the foregoing account a few cases are subjoined which may perhaps afford a useful illustration. Such details serve to place the patient more immediately before us, and certainly convey a more correct idea of his disease than could be drawn from the perusal of a general narrative. As this endemic was characterized by great uniformity in appearance, few examples are necessary to include nearly the whole range of symptoms.

CASE I.

Adam Phillips—Negro, Æt. 30.

July 19, 1820.—Complains of pain in the occiput, great soreness and stiffness of his neck, severe pain in the breast, tenderness and tension of the epigastrium with internal sense of burning. Tongue dry and white,—pulse quick and compressible. Was taken on the 16th with a chill of short duration, succeeded by a fever which went off in a few hours with a copious sweat. Prescribed an emetic-cathartic powder composed of Ipecac. \mathfrak{z} i. Cal. ppt. gr. x. which brought away several copious bilious discharges from the stomach and bowels—to the great alleviation of all his symptoms. Takes the decoction of *Serpentaria*.

20th.—A fresh exacerbation preceded by a chill. Complains of pain in the head, neck, back and mbs, most

severe in the breast. Bad taste—white tongue. Pulse frequent and small. Hot and dry skin. Blister to the breast. Cal. gr. iss. Sal. nitri gr. x. every second hour.

21st.—Tenderness of the epigastric and abdominal regions so much increased that he cries out upon the gentlest pressure. Blister rose. Skin dry and hot. Thirst. Cal. gr. x. Opii gr. i. its operation to be followed up with camphor julep.

22d.—The medicine of yesterday brought away frequent yellow and dark coloured stools. All the pains alleviated except that of the breast. Skin very hot. Blistered surfaces discharge yellow serum. Eyes very yellow. Tongue coated with yellow fur. Pulse still feeble and frequent. Much prostration of strength with some tendency to delirium. Ordered the decoction of bark and serpentaria, with a table spoonful of volatile julep every second hour.

23d.—Eyes have a deep saffron tinge with a muddy suffusion. Nausea and vomiting of green bile. Great external tenderness of the stomach with internal sense of burning. Pulse very feeble and frequent. Skin cool and dry. Dorsum of the tongue coated with black fur, the edges red. Drinks much to satisfy his thirst, but the fluids are quickly rejected by his stomach. Yellow watery dejections. With the view of trying the virtue of sugar of lead, so highly extolled for its efficacy in allaying gastric irritability—administered it in combination with calomel. Sacch. sat. gr. iij—cal. ppt. gr. ij. every second hour. Found in the evening that the saturnine powders seemed rather to increase than allay the irritability of the stomach—administer lime-water and laudanum with a happy effect. At bed-time a tea-spoonful of liquor. anod. Hoffman, with twenty drops of laudanum.

24th.—A considerable remission. Had a better night than usual. The volatile julep is retained by the stomach. Feels no acute local pain, but complains of a soreness and bruised sensation over the whole surface of his body and extremities, greatly aggravated by pressure. Skin cool and dry. Fur on the tongue of a muddy yellow colour, show-

ing a tendency to wear off from the edges. Pulse less frequent but very feeble. Sudden and partial flushes of heat. Lies tranquil. Ordered wine and bark with vol. julep. At night the anodyne draught.

25th.—His skin for the last twenty-four hours has generally been moistened with perspiration equally diffused. Frequent dark coloured dejections. Pulse feeble, but slow and regular. Soreness of the integuments continues. Some desire for food. Wine, bark, elixir vitriol and nutritious soups.

26th.—Passed a good night. Pulse still feeble, but continues slow and regular. Less external soreness and a general amelioration of symptoms. Skin warm and moist. The tongue is nearly clean except a black patch in the middle. Dark coloured dejections. Evident increase of muscular strength. Complains of ardor urinæ. Repeat prescription of yesterday, with a tea-spoonful of spts. nit. dulc. every second hour.

27th.—Remained better all day yesterday, but passed a restless night. The black patch still on the tongue. Considerable soreness of the integuments. Stools frequent and dark. Eyes still retain their deep saffron tinge and muddy suffusion. Pulse very feeble but slow and regular. Cal. gr. viij. opii. gr. i. in chart. no. vj. one every second hour. Continue tonics, &c.

28th.—Passed a good night. Tongue clean. Gums slightly touched by the calomel. Eyes nearly clear, appetite good, soreness of the integuments scarcely perceptible. Convalescent.

This poor man, with his wife and five children, inhabited a room about eleven feet square in the second story of a house situated in a confined and filthy court. The door opened into an entry, and a small window was the only ventilator, which, as the family bed could be placed no where but directly under it, was generally closed at night and in bad weather. When to these circumstances are added those of extreme poverty and want of cleanliness, it would be a matter of surprise to find the rest of the inmates to have es-

caped the fever. As might be expected, they all contracted the disease, were sick at the same time, and what was quite unexpected, all recovered without being removed from an atmosphere so foul and offensive, that I could scarcely remain in it long enough to write my prescriptions. So intolerable indeed were the effluvia from the sick, as to compel me often to examine the cases with as much haste as possible, and to finish my prescriptions outside the door.

CASE II.

John Doughty, Negro, Ætat. 27.

July 20. Says he first felt weak and unwell on the 18th. Yesterday had a chill, which lasted about half an hour, and terminated in a high fever. Felt considerable pain in the head, back and stomach, and was troubled with a cough and some nausea. Complains now of pain in the occiput and back, with epigastric tenderness and tension. His eye is muddy, and of a deep saffron tinge—tongue very white—skin dry and parched—pulse feeble and frequent. Ordered the emetic-cathartic powder, to be followed up with decoct. serpent.

21st. Medicine has operated five or six times, upwards and downwards. Stools dark, fætid and bilious. Pulse frequent and feeble. Head and stomach greatly relieved. Cough still troublesome. Blister to the breast. Camphor julep. Calomel gr. ij. every second hour.

22d. General abatement in the more violent symptoms, owing to a slight remission. Blister rose well and discharges yellow serum. Pulse very weak and frequent. Cough relieved. Tongue still white. Yellowish dejections. Continue calomel. Camphor julep, with decoct. of bark and serpentaria.

23d. Passed a restless night. His eyes of a deep yellow tinge, with a muddy suffusion. Tongue white and dry. Complains of no pain, except when pressed upon the stomach. Great listlessness, with tendency to coma. Pulse more feeble. Notwithstanding his apparent prostration, still walks across the room. Blistered surfaces show a tendency to dry

away, (a bad symptom.) Blisters to extremities. Volatile julep, bark and wine.

24th. Free from pain. Perspires profusely, with sometimes a warm flush, at others a cold skin. Blisters drew. In the evening, cold skin and clammy sweat. Continue stimulant and tonic treatment.

25th. Tongue still white and dry—pulse quick and feeble. Appears comatose. During the night restless, talkative, with slight low delirium. Says he feels better, whilst he is obviously growing worse. Free from pain. Can sit up, and still walks out to the privy. Skin cold and moist. Features sunk, and countenance indicative of danger. In addition to wine and bark, takes every second hour a table spoonful of brandy, impregnated with capsicum.

At noon he was conveyed to the Alms-House, where I saw him on the 27th, still alive, and even sitting up in bed. His haggard countenance indicated a degree of danger to which his torpid mind seemed totally unconscious. He died soon after. One of the medical gentlemen attached to the institution, who had politely engaged to mark the concluding symptoms in this case, was prevented from doing so, by sickness.

CASE III.

Lydia Jackson, Negress, Ætat. 23.

July 15th. Says she was attacked on the 9th, with a chill succeeded by a high fever, and vomited so violently that she threw up blood in her efforts. A severe pain in the head, neck and back ensued, with gastric tenderness. Three days previous to her attack, she had left a court in Sixth street near Pine—a most unwholesome spot, and went to service in Hamiltonville, from whence she was brought back to the source of her disease. Complains now of severe occipital pain, extending to the neck, where it is excruciating—great soreness of the epigastrium, with internal sense of burning—neck rigidly drawn back, as we see it in tetanus—extreme thirst and desire for acids. Pulse feeble, but not so frequent as usual in similar cases. Eyes extremely yellow, with a muddy suffusion. Yellow dejections. Calomel gr. iij.

every third hour. Camphor julep every second hour. Blisters to the epigastrium and wrists. Decoction of serpentaria.

16th. Very little change in the symptoms. Blisters have drawn well. Passed rather a restless night. Calomel brings away frequent, offensive, dark coloured stools. Pulse more frequent, and smaller. Continue prescription of yesterday, except the blisters.

17th. Pain in the head ; soreness and rigidity of the neck still so severe, that she cries out upon the least motion. Not so tender in the epigastrium. Brown fur on the tongue. Skin cool and dry. Frequent and very offensive dark coloured dejections. At times a little delirious. Blistered surfaces drying up. Bark, wine, volatile julep.

18th. A gentle remission. Prescription of yesterday, with fresh blisters to extremities, and calomel gr. vj.

19th. Tongue looks cleaner on the edges. Blisters rose well. Dejections still dark and fetid. Pulse feeble, but slower. Continue bark, wine, and vol. julep.

20th. The dark fur leaving her tongue slowly. Blisters discharge freely. Gastric tenderness and internal burning less severe. Some inclination for food. Eyes less muddy, but still very yellow. Pulse slow, regular, soft and feeble. Takes bark and wine, decoct. serpent. and elix. vit. alternately every two hours.

21st. Neck not yet free from pain and stiffness. The last blisters discharge freely. Seems tranquil, and on the recovery. Persevere with tonics, nutritious soups and porter.

22d. Several dark coloured stools within the last twenty-four hours. Free from pain. Tongue not yet rid of its dark fur. Eyes regaining their clearness. Same treatment.

23d. A slight pain in the left hypogastrium. Appetite moderate. Tongue cleaning. Eyes no longer muddy, but still slightly jaundiced. Five or six dark stools within the last twenty-four hours. Persevere in the same treatment.

24th. Eyes have recovered their natural clearness. Pulse slow, and getting stronger. Appearance of stools more na-

tural. Sits up, and has a good appetite. Considering her convalescent, I left her, with a strict injunction to take every day several doses of bark, together with the decoction of serpentaria and elixir vitriol.

29th. Called upon to visit her, and found her sitting up, with a hot skin, frequent and feeble pulse, white tongue, jaundiced eye and most anxious countenance. Upon inquiry, I ascertained that she had not taken the bark, and other medicines as ordered to do, and had been attacked with a chill about twelve hours prior to my visit. In the afternoon, a messenger came to inform me of her death, which was not less sudden than unexpected.

CASE IV.

Margaret Jackson, Ætat. 25,

Sister to the subject of the preceding case, was seized on the 20th of July, whilst nursing her sister, with a chill, followed by fever, pain in the head, back and extremities. Tenderness in the epigastrium with internal sense of burning. Vitiating taste—nausea—frequent yellow dejections. On the 22d, applied to me for medical aid, and exhibited the foregoing symptoms, together with a feeble, frequent pulse, white tongue and jaundiced eye. Ordered the emetic-cathartic powder, its operation to be followed by a free use of the decoction of serpentaria.

23d. Medicine operated well both ways, bringing away many fetid bilious stools. A general remission. Sits up and says she feels quite comfortable. Pulse less feeble and frequent. Eyes and tongue of a better colour. Under the use of the bark and serpentaria, she speedily recovered, without any recurrence of fever.

CASE V.

Joshua Peters, a black boy, Ætat. 8.

On the night of the 12th of July, waked up in a fit of delirium, without having experienced the usual premonitory symptoms. He grew tranquil as the fever abated. I saw him first on the morning of the 13th, when he was calm

and exhibited the usual symptoms of the prevailing endemic. He took the emetic-cathartic powder, and after its operation pulv. antimon. gr. vj. cal. ppt. gr. j. every second hour—drank the decoction of serpentaria, and had a blister applied to the epigastrium.

14th. Medicine has operated well, and produced a slight abatement in the symptoms. Blister rose. Prescription continued.

15th. Hot, dry skin. Pulse frequent and compressible. Instead of the usual white fur on the tongue, its surface is marked with a singular red or purple tinge. Repeat prescription of the 13th.

16th. Tongue covered with a dark fur. Very little variation in symptoms or treatment, except blisters to extremities.

17th. The calomel brings away frequent dark coloured stools. Tongue shows a tendency to clean along the edges. Gastric tenderness and burning less severe, but he still complains much of stiffness and soreness of the neck. Eyes jaundiced. Takes wine, bark and camphor julep.

18. Free discharge from the last blisters. Tongue cleaning along the edges. Pulse slow, regular and feeble. Stools still dark coloured. A general improvement in his symptoms. Bark, wine and elixir vitriol.

19th. Symptoms still favourable. Treatment the same.

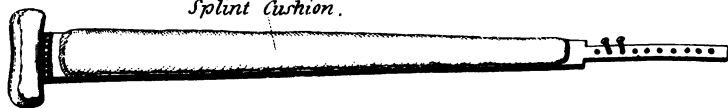
20th. Tongue clean, craves food. This patient convalesced slowly, but finally got well, under a constant use of bark, serpentaria, elixir vitriol, and nutritious food.

The two last cases are inserted with very different views. The one exhibits a frequent and speedy termination of the disease, whilst the other represents a mode of attack, which, judging from my own observation, was not very common. The reason for selecting the cases with unfavourable terminations is too obvious to need explanation.

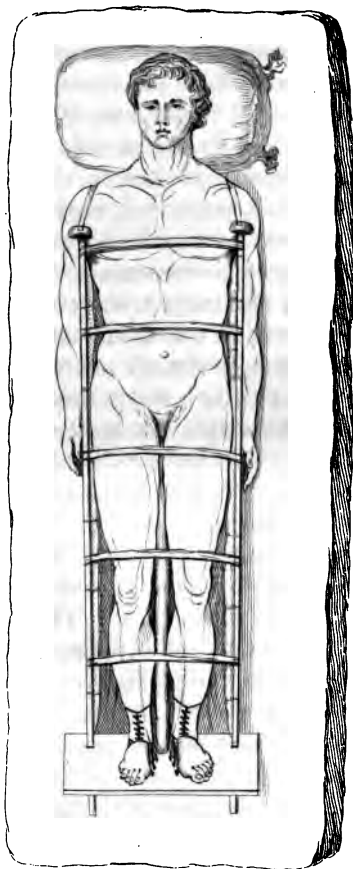


Gibson's apparatus for fractured thigh.

Splint.



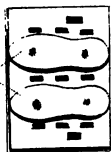
Splint Cushion.



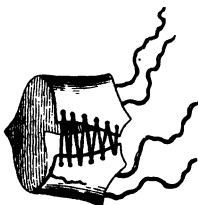
Short Cushion



Foot Cushions.



Gaiter.



Drawn & Eng^d by F. Kearny.

ART. II. *Reflections on the Treatment of Fractures of the Thigh, with an Account of a new Apparatus.*—By WILLIAM GIBSON, M. D. Professor of Surgery in the University of Pennsylvania.

THE numerous and diversified contrivances, employed by the older surgeons, permanently to retain in accurate apposition the ends of a fractured thigh bone, afford incontestable evidence of the difficulties they must have encountered in the management of such accidents. These difficulties are as great at the present day as at any former period, if we may judge from the opposite treatment pursued in different parts of the world, and from the complicated, expensive and changeful apparatus, alternately introduced into and banished from practice. Under such circumstances, no apology can be necessary for treating of a subject, however hacknied, or for offering to the profession a method, confessedly simple in the extreme, differing essentially in principle and application from almost every other, and possessing, it is believed, at least some advantages not hitherto attained. But to render these conspicuous and intelligible, a summary of the inconveniences and defects of the different modes now practised, must be premised.

It is well known, that in fractures of the os femoris, the extended and semiflexed positions have each been extolled by their different advocates as the most appropriate. The former is the most ancient, and can be traced as far back as the time of Hippocrates. The latter is, comparatively, of modern date, and, was introduced into practice chiefly by the celebrated Pott. But though the extended was the position usually employed by the ancients, and by many of the older surgeons, in imitation of them, yet, owing to their rude and imperfect contrivances, very little benefit resulted from the practice, and we are indebted to the distinguished Dessault for the first systematic and rational attempt, by extension and counter extension, to overcome difficulties

which were considered almost insurmountable. The apparatus of this ingenious surgeon is so well known in the United States, where it has been generally employed for the last thirty years, that more than a very general description would be quite superfluous. Suffice it to say, that it consists of a splint, long enough to reach from the hip to some distance beyond the foot—intended for the outside of the limb;—of a second splint, extending from the perinæum along the inner surface of the thigh and leg, and terminating opposite to the extremity of the first splint;—of a third splint, placed on the anterior part of the thigh, and reaching from the abdomen to the knee;—of an extending and counter extending band—the former to be secured to the foot and lower extremity of the long splint—the latter to its upper extremity, after having passed under the perinæum. These are the essential parts of the apparatus. The minor parts are, several cushions or junks, compresses for the perinæum and ankle, a junk cloth, the bandage of Scultetus and tapes to confine the whole, so as to convert, as it were, the pelvis, thigh, leg and foot, into a solid piece. These are the acknowledged indications; let us see how far they are calculated to answer the purpose. The lower fragment of bone, drawn by the action of the muscles past the other, is mounted upon the thigh, the limb is shortened and the foot turned outwards; the surgeon draws down the foot and leg, coaptates the broken extremities of bone, places the limb in its natural position, fastens his extending and counter extending bands, and preserves, as he imagines, the limb of its natural length. But are his views really accomplished? Can he exert sufficient force to overcome the resistance of the muscles and prevent the retraction of the bone, or if he actually accomplish this for a limited time, do not his bands speedily yield, become elongated and twisted like a rope, and by being relaxed, permit the muscles again to act, and the bones to resume their unnatural position? Again—admitting the texture of the bands to be such as not to suffer extension, are the soft parts covering the ischium and ankle (the principal points of action) incompress-

sible? On the contrary, is not the principal pressure, especially in fat subjects, sustained by them, and what is the inevitable result of this pressure if rigorously kept up? *ulceration*, and perhaps *sloughing*. These are difficulties, which every candid man, who has had much experience in the treatment of a fractured thigh, will acknowledge to exist, which Dessault himself, in part, acknowledged, and which every one, who pays the slightest attention to the subject, will find to be strictly true. "Like all other kinds of apparatus," says he, "formed principally of rollers, this is very subject to become relaxed; and requires great attention on the part of the surgeon. It ought to be examined attentively every day, particularly the two extending bandages. As soon as they become relaxed, they must be immediately tightened again: without this precaution, *the effect of the apparatus will be lost*. Be vigilant also with respect to the compress placed between the roller and the tuberosity of the ischium. Should this slip, the roller being frequently tightened, and pressing immediately on the skin, *may produce excoriations and ulcers difficult to be healed*, especially in females. The roller itself may slip, and then leaving no longer a solid point of support and action on the tuberosity of the ischium, it makes extension in but an imperfect manner." But are these the only objections? Has it not been proved by experience that the perineal band, from its transverse action on the thigh, has a tendency to throw the superior fragment of bone outwards? Again, does not the extending band, owing to the obliquity of its action, force the foot preternaturally outwards? It may be answered, perhaps, that the ingenious improvements of Doctors Physick and Hutchinson, upon the original apparatus of Dessault, have, in a measure, obviated these difficulties. This we are very ready to allow, but still they exist, to a certain extent, and as such impair the value of the whole. So far as my own experience goes, (which amounts to upwards of twelve years, during the greater part of which time I had the chief control of the surgical cases of a large Hospital, and Alms-House, together with an extensive private practice,) I am ready to declare, that I have never met

with a single instance of *oblique* fracture of the thigh bone, in which I have used the apparatus of Dessault, (and until the last six months I have never used any other,) that more or less ulceration of the perinæum and foot, and shortening of the limb, were not the consequence. On the other hand it is proper to state, that during the long and extensive practice of Dr. Physick, numerous cases have occurred in which satisfactory cures have been produced by the apparatus of Dessault, as modified by himself and Dr. Hutchinson; and there can be no doubt, notwithstanding the objections already advanced to Dessault's splints, that compared with other apparatus, and that too proposed as an improvement on them, they are in many respects infinitely superior. This especially holds good as respects the apparatus of *Boyer*, which does not differ from that of Dessault in principle, but is very inferior to it—being very complicated and expensive, and therefore not adapted to common practice. On the contrary, the greatest advantage possessed by the original contrivance, is its *simplicity*—the materials of which it is composed being always at hand, or prepared in a very short time. The padded straps of *Boyer*, although certainly better than the bands of Dessault, are yet liable, as I have found, to produce more or less of the same inconvenience—*ulceration*. Upon the whole, it may be stated, that the plan of Dessault, as modified by Dr. Physick, is better calculated to fulfil the indications for which it was designed, than any other acting upon the same principle; but that if the same end, viz. extension and counter extension, can be effected, upon a *different* principle, without injuring the perinæum and foot, as shall afterwards be shown, advantages must be gained, which the other can never possess.*

The semiflexed position, so strenuously commended by Mr. Pott, and followed by the British surgeons, almost without exception, is one against which, as a general practice, many objections may be urged. It must be evident

* The splints of Dessault, as modified by Dr. Hartshorne, an able practitioner of this city, I have not seen; they are represented, however, as more efficient and less objectionable than the original apparatus.

even to the most careless observer, that if the thigh be bent on the pelvis, its outside resting on the great trochanter, the body of the patient inclining to the same side, the leg bent upon the thigh, and the whole limb in a state of semiflexion, the plan advised by Mr. Pott, that not the slightest power can be exerted upon the limb, either in confining it to one position, or in effecting extension and counter extension—the only process by which the broken extremities of bone can be prevented from riding upon each other. If splints are placed on the thigh, while in this position, it is obvious that they can extend only throughout its length, and consequently must either prove altogether inoperative, or, at best, only serve to give lateral support to the limb, without effecting, in the slightest degree, its longitudinal extension. The position itself, moreover, independently of other considerations, is by no means so easy and comfortable for the patient, as has been alleged, or as might be imagined from the relaxed state of some of the muscles. Indeed experience has sufficiently proved, that although immediately after the accident, the patient suffers less while the limb is kept in the semiflexed position than he does when it is placed in the extended one, yet in a course of a few hours, this very position becomes so irksome as hardly to be sustained, and creates an incessant desire to have it changed. On the contrary the extended position, even from the first, is attended with no great inconvenience, and finally is found so free from pain, that there is reason to believe the patient would not voluntarily change it, if permitted so to do. Every one knows, indeed, that it is much easier to lay for a considerable length of time on the back than on the side, even while in health; it may easily be conceived then, how tedious and fatiguing must be the patient's situation, when not only his broken limb is confined to an uncomfortable posture, but his body also. Much has been said by the advocates for the semiflexed position, of the *entire* relaxation of the muscles of the limb, while in that position. But is this really the case? Certainly not; for however much we may relax the triceps, semitendinosus, semimembranosus, sartorius, gracilis and others, yet there will remain a sufficient

quantity of muscular power, to draw up the inferior fragment, and counteract all the benefit we might expect from position alone. While it must be acknowledged then, that in the bent position the *greatest* number of muscles are relaxed, yet it does not follow that this must be the easiest for the patient, or the most effectual in preventing deformity and effecting a cure. Besides these inconveniences, however, attending the bent position, there are others not less objectionable. Much of the superincumbent weight of the body, and the greater part of the weight of the thigh, are sustained by the *trochanter*. This is necessarily productive of great pain, and sometimes of very troublesome ulceration, and on this account renders the semiflex attitude particularly inconvenient, in cases of fracture of the *neck* of the thigh bone, and more or less irksome and disagreeable even in the more simple cases. Again—the surgeon finds it impossible, when the thigh is thus situated, to compare its length with that of the opposite thigh, and consequently must be at a loss to know the extent of the shortening and deformity. More or less movement, also, of the fractured portions, must necessarily follow every attempt on the part of the patient to have a stool, and in many cases this cannot be accomplished except by an entire change of the body and limb. Should it so happen, that both thighs are broken at the same time, an accident which sometimes happens, it must be apparent that Pott's method, allowing it to be free from every other objection, cannot possibly be employed. Lastly, it may be urged, as an objection to the semiflexed position, that after consolidation of the fragments has taken place, shortening of the limb from the overlapping of the bones, is not the only deformity produced; the thigh is seldom straight, and the leg from being so long bent on the knee, does not recover for a great while, if ever, its natural position, but is suspended in such a way as to prevent the foot from reaching the ground, so long as the stiffness or false ankylosis exists. The same position is preserved for a greater or less time by the thigh, from the circumstance of its being flexed on the pelvis, and in cases of fracture of the neck of the bone, this position is extremely apt to be permanent, so

that the thigh projects preternaturally forward, while the leg being carried backwards, and suspended from the knee, the whole limb is greatly deformed, and permanent lameness ensues. The slightest reflection will convince any one, that if under the circumstances mentioned, the limb be placed in the extended position, even although ankylosis should follow both at the hip and knee, and the fragments of bone overlap, yet the patient will derive much more benefit from a limb thus stiffened and shortened, yet straight, than he could, if it were permanently retained in the flexed position.

Sensible of the difficulties to be encountered, and of the disadvantages attending the treatment of fractured thighs by the peculiar method of Pott, several English surgeons have endeavoured to retain the semiflexed position, which in some respects they consider the most appropriate, and at the same time to keep up extension and counter extension. To accomplish this, Mr. White, of Manchester, was the first, I believe, to propose a triangular frame, so constructed as to form an inclined plane, over which the thigh, flexed on the pelvis, and the leg on the thigh, were placed and suspended, as it were, above the level of the patient's body. Upon this machine an improvement was afterwards made by Mr. James, of Hoddeson, which consisted chiefly in rendering the angles of union of the inclined boards flexible by hinges, and moveable by a rack, so as to adapt the apparatus to any sized patient, and to change at pleasure the degree of semiflexion. This apparatus has been employed by Mr. Astley Cooper, in London, for the last twenty years, and is still considered by him more appropriate than any other.* Mr. Charles Bell,† also, apparently without the knowledge that any such contrivance had been before employed, has described and figured a machine differing somewhat in shape, but not in principle, from the one last mentioned. It will be easy to perceive the manner in which any apparatus thus constructed acts. The patient laid on his back, has the limb placed over the inclined boards at an

* See Cooper and Travers' Surgical Essays.

† Operative Surgery, vol. ii.

angle corresponding with an easy and relaxed flexion. Cushions are placed beneath to obviate undue pressure, and splints secured to the limb to afford lateral pressure. The weight of the body hanging by and operating upon the superior fragment, naturally draws this from the inferior fragment, and thereby effects *counter extension*, while the inferior fragment, supported and fixed by the angle of union of the inclined boards, which operate upon the ham of the patient, maintains permanent *extension*. There can be no question that many of the objections to the semiflexed position, as practised by Pott, and followed by the majority of English practitioners, are obviated by this simple and ingenious contrivance, and were I disposed to select that position as more favourable than the extended one, I should certainly to this form of apparatus give a decided preference; but there are objections I apprehend even to this, ingenious as it is, which will prevent it from ever coming into general use. Let any one, for the sake of experiment, place beneath his own sound thigh and leg the machine of James or Bell, so as to have the leg secured on one side, the thigh on the other, and the body suspended and supported by the thigh. He will then find, be the cushions ever so soft, that the position is by no means so comfortable as one as he might be led to imagine; that the calf of the leg must be firmly and painfully pressed against the flat surface of the inclined boards, that the ham sustains not only the whole weight of the thigh, but that portion of the body elevated above the plane on which it would naturally rest, and under circumstances, too, most disadvantageous—being fixed upon a sharp angle, formed by the union of the two inclined boards, and leaving a surface too inconsiderable to form any other than the most painful support. If he finds this attitude painful, and with difficulty borne, for any length of time, by a sound limb, how injurious will he conclude must be the effect produced upon an inflamed and broken thigh, when similarly circumstanced? That extension and counter extension can be produced by this apparatus, and yet the semiflexed position be preserved, there cannot

be the slightest doubt. But it is extremely doubtful whether the patient can sustain the torture necessary to carry the operation into full effect. Cannot a moderate degree of extension and counter extension, it may be asked, be kept up? To this it may be answered, take off from the ham the degree of pressure necessary to relieve the patient, the body sinks and is supported by the bed, counter extension is therefore removed, extension is destroyed, and how then does your method differ from that of Pott, except in the patient being placed on his back, and a partial support being given to his limb? But granting these objections to be unfounded, would the weight of the body be always sufficient to effect counter extension, and prevent the bones from overlapping? On the other hand, would it not sometimes happen, in large and heavy men, that from too much force being exerted upon the superior fragment, by the weight of the body, inordinate irritation would ensue? Again—how are we to prevent the rotation of the pelvis, when one limb is suspended on a frame and the other extended and left at liberty? But, in answer to all this it may perhaps be said, that the twenty years' experience of Mr. Cooper, and the authority of Mr. Bell, are sufficient to justify the practice? To this it may be necessary to reply, that, with unbounded respect for the professional talents of these gentlemen, it is well known that the English surgeons, from time immemorial, have been grossly deficient in the application of bandages, and the management of fractures and dislocations. This does not rest upon bare assertion; many of their best writers acknowledge and lament the fact. Let any student now walk the rounds of the Edinburgh Infirmary, or the London Hospitals, and he will there see broken legs crooked and deformed, and without splints, and broken thighs without support, withered and shortened, and almost useless to the patient. The fault then does not rest with the individuals of the profession, but with their country. "All these changes," says Roux,* "introduced into

* *Narrative of a Journey to London.*

the art of treating fractures, which appear to us so many useful innovations, have not been considered as such by the English surgeons; and for having rejected them, or for not having adopted them, they have remained behind us in this important part of surgical treatment.”—“The English surgeons very seldom renew the application in the treatment of fractures, and they sometimes scarcely examine the limb at all, during all the time necessary for the formation of the callus. But it must result from this negligence, that the limb is not well kept in its position: the broken parts must, in some measure, be moveable, one on the other, and for that very reason be disposed to yield to all the causes which may displace them. I believe, in consequence of these circumstances, that the English surgeons can very rarely obtain the cure of fractures of the lower limbs, with the least possible deformity.”—“Too much attention can scarcely be paid,” says Mr. Hennen, (one of the most enlightened surgeons from the days of Hunter to the present time.) “to the application of the roller: yet candour compels me to say, that foreigners of almost all countries excel us in this fundamental part of our art. Our young surgeons may study, philosophize, and reason well; but neither books, reflection, nor arguments, will teach the application of a bandage, without repeated practice.”*

- It will naturally be enquired then, what means I propose to substitute for those I have unequivocally condemned, and upon what principles I imagine fractures of the thigh should be treated? To this I reply, that the indications pointed out by Dessault and acknowledged by most of the French surgeons, I consider the most appropriate, and only condemn the particular mode of carrying them into effect: that to accomplish this, other means may be devised, free from many of the inconveniences already complained of, and equally effectual in keeping up *extension* and *counter extension*.

These measures may be fulfilled in the following way.

* Principles of Military Surgery.

Instead of exerting force sufficient to counteract the contractions of the muscles and lengthen the limb by the use of counter extending bands, placed upon the perinæum of the injured thigh, the *sound* limb should be extended, and made to serve as a *splint* to the broken limb—the foot of the latter being drawn down and secured on a level with the former. But these, it will immediately be said, are the principles of *Brunninghausen*; principles long ago found ineffectual and justly abandoned. Before this be answered, let us enquire into the particular method employed by this surgeon, and then judge whether the defects proceed from the principle or from the apparatus itself. *Brunninghausen*, it is true, laid the patient on his back, kept both limbs in the extended position, and fastened the broken one to the sound, by a sort of stirrup, so as to keep both feet on a line, and thus apparently to preserve the natural length of the limbs. But in such cases, what is to prevent the patient's body and pelvis from inclining to the side of the broken thigh; and if this inclination take place, will not the superior fragment of the os femoris descend and overlap the inferior fragment? Experience has sufficiently demonstrated that such an effect is really produced, and that therefore, although the sound limb is kept fully extended, and the two feet and knees precisely on a level, yet the broken thigh may be shortened to the extent of two or three inches. On this account, no doubt, the method of *Brunninghausen* was laid aside, and no attempt, that I know of, made to revive his principle until a short time past. This was brought forward by *Hagedorn*, an eminent continental surgeon, the original account of whose apparatus I have not seen, and shall therefore furnish a description of it from the *second* volume of the "*First Lines of the Practice of Surgery*," by *Mr. Samuel Cooper*; a work published in England in 1820, and as yet very little known in the United States.

"Perhaps the most simple and effectual apparatus," says *Cooper*, "ever invented for fractures of the neck of the thigh bone, is that suggested by *Hagedorn*. His opinion is, that every apparatus for these cases should be calculated

to fulfil the following indications. 1st. It should keep the leg duly extended, and at the same time prevent the foot from being turned outwards. 2d. As all pressure on the muscles of the thigh has a tendency to make them contract, the extension is more effectual, when applied not to the thigh, but to the lower part of the limb. 3d. The apparatus must be made as little irksome to the patient as possible. 4th. The patient should not have it in his power to interfere with the extension and reduction. 5th. The apparatus should admit of the employment of fomentations or other applications."

"I believe a reference to plate the eighteenth, will convey an adequate idea of Hagedorn's original and ingenious apparatus for the treatment of a fracture of the neck of the thigh bone. The invention appears to me both more simple and more likely to answer every purpose, with less risk of failure, and less inconvenience to the patient, than either the contrivance of Boyer, or that of Dessault."

This apparatus, then, as described and figured by Cooper, consists, 1st, of a splint, which for an adult, must be between three and four feet long, five inches broad at its upper end, and about two broad at its lower end. On its inside it is excavated from its highest part down to a little below the calf, where the concavity ceases, in order to afford strength to the inferior end; 2d, of a foot-board of considerable thickness, pierced with numerous slits, and large enough for both feet to rest against; 3dly, of a long pad, intended to be placed between the splint and the outside of the limb; 4thly, of leather contrivances, somewhat like gaiters, designed to connect the feet securely with the foot-board. Each of these leather bandages has four straps, two of which are conveyed on each side of the foot through two of the holes in the foot-board, and fastened underneath it. The leather of which these pieces of the apparatus are made, should be rather stiff, and well quilted within, or lined with very soft materials. In front, each of these foot and ankle pieces admits of being laced, so as accurately to fit the part; 5thly, of a broad linen band, to be applied to the foot in order to

keep it inclined inwards. Between this band and the instep, some soft materials, or a pad, should be placed. It has four tails, two of which on each side pass through the anterior rows of holes in the foot-board, and are tied underneath it ; 6th, of a soft linen band, the use of which is to fasten the splint to the pelvis. Lastly, it is to be understood that between the soles of the feet and the upper surface of the foot-board, soft pads are to be placed."

" Hagedorn gives the following directions respecting the mode of putting on the above apparatus. Previously to the reduction, the splint is to be fastened upon the *sound* limb, and the two ancle leathers applied. After the reduction, two assistants are to keep the limb extended, while the surgeon screws on the foot-board, and places under the sole of the sound limb the pad, or little cushion, which becomes secured in this situation, as soon as the four tails of the ancle leather have been drawn through the first and second rows of slits in the foot-board, and tied underneath it in a couple of surgeon's knots. The sound limb is now to be approximated to the broken one ; both are to be put into the most natural situation and position ; the other cushion is to be interposed betwixt the foot-board and the sole of the fractured limb ; the four tails of the ancle leather on the injured member, are to be drawn through the first and second rows of slits in the foot-board, and tied ; the foot-board itself is now to be screwed to the splint as firmly as possible, and a little wedge, not mentioned in the previous account, pushed into the space between the two screws and the foot-board. Lastly, in order to prevent the toes from being turned outwards, the band is applied across the upper part of the foot, and its tails fastened under the foot-board."

" Nothing can be more simple and better qualified than this apparatus for maintaining the extension, and holding the foot in any position which may be deemed best, and this without hurting any part by the pressure employed, or causing any kind of serious annoyance to the patient."

" As soon as Hagedorn's simple but efficient apparatus," continues Mr. Cooper, " is at all known in England, I have

no doubt that it will here be considered by every impartial judge, as the very best contrivance, not only for the treatment of fractures of the neck of the femur, but also for that of all oblique and very troublesome fractures of the same bone, especially, as in these cases, it would not preclude the application of splints to the injured thigh itself."

It happened, about the time I first read the account of Hagedorn's apparatus, as detailed by Cooper, I attended, with my friend Dr. Dewees, a gentleman of this city, who, in walking through an entry in the dark, fell and fractured the right femur obliquely, about its middle, and also the left humerus, in a similar manner, just below its neck. The apparatus of Dessault was applied, and continued for two or three weeks, but owing to the obesity of the patient, it was found quite impossible to keep up extension and counter extension sufficient to prevent the overlapping of the bones, and shortening of the limb; besides this, ulceration of the perinæum and ankle, from the extending and counter extending bands, notwithstanding every precaution, soon took place to such an extent, as to oblige us to remove all pressure from the parts, and consequently to render the apparatus inoperative. Under such circumstances I determined to try the method of Hagedorn. I soon found, however, that simple and ingenious as it was, and calculated to effect extension and counter extension to a much greater degree than that of Dessault, that it was still imperfect, but susceptible of such changes as would make it a most valuable acquisition. In particular I found, owing to there being but one splint, and that extending a short distance only above the hip of the sound side, that the injured thigh of the patient was left without support, and no resistance opposed to the natural efforts of the patient to incline his shoulder, body and pelvis to the affected side, and consequently, although the inferior fragment retained its position, from the foot being secured on a level with the sound foot, and could not therefore ascend, yet the superior fragment, carried down by the weight of the body, and by the inclined pelvis, passed the inferior fragment and shortened the limb.

It then occurred to me, if I construct two splints, each padded or stuffed like the head of a crutch, and long enough to reach from the arm-pit to the foot, and secure these by circular bandages around the body and limbs, and by a foot-board, the necessary support must be given, the pelvis cannot incline, and the broken limb must remain of its natural length. The experiment was tried and with the happiest effect; notwithstanding the splint could not be carried, owing to the broken arm, as high as could have been wished. Convinced of the utility, then, of the principles, originally suggested by Brunninghausen, and of the efficacy of the particular apparatus I have contrived, as an improvement on that of Hagedorn, I submit a detailed account of its construction and mode of application.

Two splints, half an inch thick, formed at the upper extremities like the head of a crutch, five inches wide, immediately below this head, five feet and a half in length and tapering towards the lower end, which is about two inches wide, constitute a sort of enclosure for the body and limbs, from the arm-pits beyond the feet. The lower end of each splint, to the extent of a foot, is straight, and has six or eight holes, at equal distances, large enough to receive a stout peg, intended to secure the foot-board. Shoulders, also, are made in the splint, just above the upper peg hole, for the purpose of preventing the foot-board from ascending. The foot-board itself is made of seasoned tough wood, is an inch thick, about twelve inches long and nine high. At different distances in it, there are three rows of slits, half an inch wide and an inch and a half long, intended for the gaiter straps or bandages which secure the feet to the board. Two other slits or mortices, of the same kind, receive the lower ends of the splints, making in all eleven perforations through the foot-board. The gaiters are made of soft leather, lined with buckskin, or of strong linen, well quilted on the inner surface; are laced to the leg above the ankle by a cord, and have four straps to each, two near the instep, and two near the heel, sufficiently long to pass through the foot-board and admit of being tied on its back part. Two

cushions or junks, made of old linen, the breadth and length of the splints, and an inch thick, together with another cushion of the same kind, and long enough to reach from the perinæum to the foot; a splint or junk cloth, similar to that of Dessault, wide enough to enrol the splints several times, and long enough to extend from the perinæum to the ankle; several tapes or pieces of roller, constitute the remainder of the apparatus.*

Antecedent to the adjustment of the limb, and the application of the splints and bandages, a bedstead should be selected, with a board bottom, and over this be placed a thick and firm matrass. If a feather bed be employed, it will be quite impossible to prevent deformity and inconveniences, however well contrived the apparatus may be. This is a point, therefore, which should always be insisted on by the surgeon, and if no matrass be at hand, blankets or quilts must be substituted, and laid over the bedstead or floor. The matrass being covered by a sheet, the first step on the part of the surgeon is to take six or eight tapes, or pieces of common roller, three or four feet long, and arrange them transversely at different distances, from the foot towards the head of the bedstead. The splint cloth is next laid over the tapes—its longest diameter running parallel with them. The patient is now placed on the matrass, his clothes being previously stripped off, or cut away as occasion may require, his body is kept perfectly straight, and both limbs placed as accurately as possible over the centre of the dressings. Extension and counter-extension being made, and the ends of the bones coaptated, the splints previously covered by their cushions, which are placed on the inner sides, and serve to take off any unpleasant pressure, are next rolled up in the splint cloth, and brought closely in contact with the body and limbs. The surgeon next fixes the gaiters to the ankle, and fastens the foot-board to the splints. The feet, having two small cushions

* To prevent the patient from removing his armpit, from the crutch-like head of the splint, a strap is fastened to it and crosses the shoulder.

beneath them to rest on, are next secured to the foot-board by passing the straps through the holes, and tying them on the outside. All that remains is, fix the third cushion or strap between the thighs, to pass the tapes around the limbs, splints and body, and secure the whole, so as to constitute, as it were, one solid piece.

As all patients, with fractured thighs, experience more or less inconvenience from the difficulty of having a passage, and as this difficulty will exist with any apparatus, however constructed, it becomes very desirable to obviate it as much as possible by employing such means as are the most simple, and at the same time most effectual. The ingenious contrivance of Mr. Henry Earle,* for suspending the patient, temporarily, on a strong canvass or sacking bottom, stretched upon a frame, and raised by pullies or a jack, however well adapted to a hospital or any large establishment, cannot, from its complex and expensive structure, be introduced into private practice, even in a large city, much less in country places. Fortunately, however, every possible advantage may be derived by using Mr. Earle's principle, together with the most simple but effectual part of his machine. For several years past, I have used a common frame, seven feet long and three feet wide, upon which is tacked a sacking bottom, having a hole in its centre about the size of the crown of a hat. The sacking bottom is supported by girths passed beneath it and secured to the frame. As this simple apparatus can be adapted to any common bedstead, it may be kept constantly on hand by the surgeon, or manufactured, at a few minutes notice, if required, by the most common mechanic in any country place. When prepared it will be only necessary to lay the frame over the mattress, place the dressings on the sacking bottom, (previously covered by a sheet with a hole in it corresponding to the one in the sacking bottom) and the patient on the dressings, taking care that his buttocks be exactly adapted to the opening. Upon this very simple contrivance, the pa-

* See Potts' works, by Sir James Earle, vol. i.

tient will lay with as much comfort, as on the mattress itself, and whenever he desires to have a stool, it will only be necessary for two assistants, one at each end of the bed, to raise the frame six or eight inches from the mattress, and support it in this situation by a small block, placed at each corner of the frame, or by a moveable leg or foot permanently attached to the frame. As I have employed this machine upon several occasions, I can speak with confidence of its efficacy, and can recommend it as equal, if not superior, to the original apparatus itself, which I have frequently seen in operation in the European and American Hospitals. But whether this modification of Earle's bedstead be employed or not, I have ascertained to my satisfaction, that the draw sheet, or dish or pewter pan, articles in common use, in cases of fractured thigh, can with greater facility be employed when the patient's limbs and body are secured by the plan I have ventured to propose, than by any other mode. Indeed, so firmly are the limbs supported against each other, and so completely is the body fixed, that the whole may be said to constitute but one piece, and the patient can be turned or raised, and the pan slipped beneath him, without in the slightest degree, disturbing the fragments of bone.

It may be well, in the next place, to anticipate such objections as may possibly be brought against the principles and practice I have endeavoured to establish. It will be said perhaps, that the extended position, above all others, is the most painful and inconvenient to the patient; that spasmodic affections are very apt to occur, particularly upon every attempt of the patient to procure sleep,—that the confinement of one limb, as usually practised, is irksome enough,—that the confinement of both, and of the body also, must be, if not insupportable, painful in the extreme,—that the counter extension, which is exerted entirely on the acetabulum and thigh of the sound side, will cause the limb to swell, or to become so much fatigued as to produce great distress—that the gaiters confining the feet to the board, will cause ulceration of the ancles,—that both limbs, from

being kept so long in the extended position, will become stiff or ankylosed,—that the inclination of the body and pelvis to the affected side cannot be prevented, by the lodgment of the crutch-like end of the splint in the armpit; for the scapula is a moveable point—being connected to the body chiefly by muscles, which yield to any impulse communicated to them, and that, therefore, the superior fragment of bone cannot be prevented from descending and riding over the inferior fragment, that in cases where both thighs are fractured, the principle, upon which the apparatus acts, must be destroyed, and consequently the practice totally inadmissible.

Let us see how far these objections can bear examination. That the extended position is more painful for the first few hours, than the semiflexed one, may, perhaps, be admitted: but it has been proved, beyond all doubt, by Dessault, Boyer, Richerand, Roux, and many other distinguished French and Continental surgeons, that the inconvenience is temporary only, that the muscles soon become accustomed to their position and cease to afford uneasiness; that on the contrary, in the semiflexed position, however comfortable the patient may feel for a short time after the accident, yet he soon becomes tired, and would give the world to be permitted to extend the limb.

With regard to the second objection—that spasmodic affections follow the extended more than any other position, it may be remarked, that this is by no means the case, that startings or involuntary twitchings annoy the patient, exceedingly, after *all* fractures of the limbs, be the position what it may, especially upon the patient's falling into a doze, from which he is often roused by sudden and violent jerking and sometimes by a movement of the broken ends; but admitting these startings to accompany the extended more than any other posture, should this be considered a serious objection, when we find it so easy to subdue them by appropriate remedies, such as opium, blood-letting, low diet, topical applications?

As respects the third objection, that the confinement of

one limb is bad enough, without the confinement of both, it may be asked, if the limb were extended and merely inclosed in Dessault's or Boyer's apparatus, divested of their extending and counter extending bands, would the mere posture and confinement be sufficient materially to incommode the patient? On the contrary has it not been already shown, and even acknowledged by Dessault himself, that the chief inconvenience and distress proceeds from the pressure of these bands and the consequent ulceration? If position itself, therefore, be attended with no unpleasant consequence, certainly the additional confinement of the *sound* limb, can put the patient to no inconvenience, especially as the use he could make of it, when stretched upon his back and unable to rise, would be so very limited as to contribute but in the slightest degree to his comfort. Again, the patient is necessarily confined to his back, whether he use the apparatus of Dessault or any other. What difference, therefore, can it make to him, whether the splints extend to the arm-pits or not, or whether the body be kept perfectly straight, or be permitted to deviate to the right or to the left? If the system of Dessault be rigidly enforced, or if the splint, as advised by Dr. Physick, be carried to the axilla and there secured, can the patient then raise himself in bed, or can he relieve himself by alternately inclining to either side? Certainly not; for in either case he is as completely fettered as if lashed to a post. If these views be correct, unquestionably no disadvantage can arise from an *additional* splint, which does not encumber the patient, but only serves to give him support.

The fourth objection relates to counter extension, sustained by the acetabulum and head of the thigh bone of the sound side. Admitting this to produce some uneasiness to the patient, is it not better that it should be borne by a limb uninjured, free from inflammation and devoid of pain, than that the same force should be sustained by a limb acutely sensible, and greatly swollen? But is much force really exerted? Does the patient actually complain of the fatigue and irritation? This I can only answer by stating, that in

the case in which I employed the mode I have advised, no such distress was occasioned, except for a very short period, notwithstanding the habit of the patient was gouty and in other respects unfavourable. Indeed, does it not seem rational that the acetabulum and head of the thigh bone, in their natural state, accustomed as they are to bear at least one half of the weight of the superincumbent parts, should be fully able to support and counteract all the efforts of the muscles of a broken thigh, and that too without sustaining the slightest inconvenience?

The fifth objection—that the gaiters will produce ulceration of the ancles, may be answered by stating, that if so, we are no worse off, than if we employed the apparatus of Dessault; for his extending band being a single handkerchief, or piece of cotton or linen, will become twisted, and produce more irritation than a band well quilted, and applied to a broad surface.

With regard to the stiffness, which follows from a fractured limb, this will be acknowledged to be of little consequence; for mobility is soon restored upon the patient being able to walk; and if it even were of consequence, it cannot be prevented, and is equally liable to happen in all cases, and in every position that could be devised; and if ankylosis were to follow, which is extremely rare, certainly every one must allow, that it would be infinitely better, in fractures of the lower extremities, to happen in the extended than in the semiflexed position. In the former case, the limb would at least be preserved of its natural length; in the latter it would be shortened, and although the patient might possibly in both instances be lame, yet he would be less so with the limb straight, than crooked.

That the scapula is, in some measure, a moveable point, cannot be denied; but it must be admitted, at the same time, that its muscles are numerous and powerful, and as such, would be capable of resisting any common force set against them; especially, as by such application, they would be stimulated to resistance. Surely if they are sufficiently strong to support in the erect posture the weight of a very

heavy man, by crutches, without the scapulæ being much raised, they will at least serve, and that too without an effort, to sustain the body in the recumbent position, and prevent a descent sufficient to incline the pelvis, or enable the superior fragment to ride upon the inferior! But the fact is, that the arm and scapula do not move so readily as some imagine; the clavicle being attached to the sternum, gives very considerable support to the scapula and arm, independently of the resistance afforded by the muscles themselves.

The last objection—where both thighs are broken, is the only one which applies with any force, and this it must be acknowledged, is altogether insurmountable. Here, it must be obvious, that neither the apparatus of Hagedorn, nor the one I have proposed, nor any other, founded upon the same principles, can act. But how often do we meet with such an accident? Not once in five hundred times. Here, then, we still have hardly an objection to the *general* employment of the means I have advised. If both thighs should be broken, I would use the apparatus of Dessault, as modified by Dr. Physick, in whose hands perfect cures, under all circumstances, have been produced. Let not these, however, be too sure a guide for all other practitioners; let it be remembered that it is the peculiar privilege of genius, to accomplish ends without advantages, to overcome difficulties insurmountable to ordinary minds, and that in the instance of the illustrious character just mentioned, success is always sure to follow, where success is possible.



ART. III. *Observations on Mania à Potu*. By JAMES M. STAUGHTON, M. D.

THE faculty by which man is elevated above the creatures around him, is intellect. By this he is qualified for the investigation, defence, and diffusion of truth, and for those

pure and rational pleasures which beguile the sorrows, and augment the usefulness of present existence.—To cherish and strengthen his mental powers and direct them to the noblest pursuits, is his indispensable duty—against whatever may tend to diminish or degrade them, he ought sedulously to guard, and more especially against whatever may conduce to confound, invert or oblivate all that is dear and dignified in his species.

The causes which induce that pitiable condition denominated mania are numerous. They have often been traced, and are sufficiently known—one of these, less frequently referred to, though not less injurious than the rest, it is the design of the following pages to exhibit.

Drunkenness is an evil of frequent occurrence. The many diseases to which the inebriate is liable, form a considerable part of the train of misfortunes, following the practice of this vice. It is to this, we are to ascribe a disease, than which none is more formidable in its nature, or in its consequences more terrible—my allusion is to mania à potu. What I shall offer on this subject, is chiefly the result of personal observation, while resident in the Alms-House, the largest of our clinical establishments.

We have no good histories of this disease—It is presumed to be coeval with the immoderate use of ardent spirits. The reason, perhaps, why European writers have so much neglected the subject, may be, that in England, where malt liquors are generally used, and in the South of the continent, where each country drinks its own *vin du pays*, this disease is little known. Holland, Germany, Westphalia, and other northern nations, are troubled with it. From their physicians we have had some valuable tracts, abounding in rich practical precepts. It is to be regretted, that in our own country, very little attention has been paid to the subject. Though some important papers have been given to the public, much still remains to be investigated.

The name mania à potu, expresses but partially the cause of the disorder. In Germany it is called delirium tremens, from the tremors which generally accompany, or rather pre-

cede the attack of derangement. Perhaps, on the whole, mania a temulentia is the most appropriate title.

The only cause of this form of insanity is the immoderate and continued use of ardent spirits.

The seat of the disease, is, I believe, the stomach—This viscus in inebriates is generally affected, and in *post mortem* examinations is found sometimes inflamed—sometimes with thickened coats—sometimes in a scirrhus state, and sometimes contracted into a small pouch.* Dissections made by myself, or in which I have participated, uniformly disclosed an inflamed stomach. Now we know, that delirium is a frequent symptom of common gastritis, and in this case every one attributes the mental aberration to the very intimate sympathy subsisting between the stomach and the brain. Why then should it be thought improbable that the diseased stomach produces the insanity, and more especially, since disorganization of the brain is rarely met with?

Besides: of late it has been observed, and which I have often witnessed myself, that the operation of an emetic frequently brings away from the stomach a very peculiar fluid. It is thick, ropy and viscid, of about the consistence of boiled tar, the colour generally a light brown, though sometimes it exhibits an entire blackness. I know not whether this fluid be the result of inflammation: but the fact appears undeniable, that where a free discharge of it is procured, recovery most probably takes place. This was first pointed out to me by a gentleman of the Alms-House, and since then, I have repeatedly seen it.

After a severe turn of hard drinking, when the exhilarating effects of the stimulus have gone off, the patient complains of nausea, slight headache, chills, not so much regular rigors as a sensation similar to that produced by cold water poured down the back.—These having continued for a day or two, a slight confusion of ideas is perceived. Besides this, the patient has no appetite, is extremely restless

* Black's Paper, in the Reports of the Dublin Hospital Practice.

and cannot sleep—About the same time tremors are commonly visible, not amounting, however, to subsultus tendinum. In a longer or shorter interval, according to the peculiar circumstances of the case, the confirmed mania shows itself. The pulse is now, full, soft and gaseous, quick and not very frequent, seldom exceeding ninety pulsations in a minute. The skin is natural both in moisture and temperature. The countenance exhibits strong marks of anxiety, though the eye is less wild and rolling than in a common frenzy. The tongue is moist, covered with a white fur, and sometimes tinged with brown toward the root. The bowels are almost always constipated, no desire is felt for food, and the thirst is considerable, particularly for cold water.

The behaviour of the patient towards his keepers, is in general, mild and docile. He shows attachment to his medical attendant, and is quite willing to receive any medicine from his hand. It is a common thing, on entering his apartment, to find him propping up the wall, and importuning assistance to prevent its falling. He frequently changes the position of his bed—and goes about endeavouring to pick up money, and other articles which he supposes lie scattered over the floor. He talks incessantly, seldom sleeps, and is constantly in fear of some one from without.

The state of mind in this disease is more brilliant, and exhibits livelier efforts of imagination, than in the common mental affections.

This train of symptoms, when left to nature, is frequently relieved by spontaneous cholera. The vomiting, however, generally precedes the typhoid state, from which it is scarcely possible, even by the most powerful stimuli, to arouse the patient. I have seen the disease terminate by convulsions, and sometimes by apoplexy.

In a majority of cases, the brain, on dissection, is found as already stated, perfectly free from all appearances of inflammation. In a few instances some slight effusions of the serous kind are to be seen.—The stomach is inflamed to a very considerable degree, and of this inflammation, the bowels and peritoneum sometimes participate. The other

viscera are mostly free from disease—when the patient dies in convulsions, an engorged state of the cerebral vessels is manifest.

For a long time, opium has been considered as a most certain remedy in this complaint. Given either alone or in combination with camphor, in small and repeated doses, it has succeeded so well as to establish the confidence of a majority of medical men.—Of this practice I am not able to speak confidently from personal observation. I know that many eminent and useful practitioners are so well pleased with it as to be unwilling that it should be relinquished. It is the plan recommended from the practical chair of my Alma Mater. This treatment must have merit, or it could not be so strongly supported.* Whilst a junior student in the Infirmary of the Alms-House, my senior used the emetic plan of treatment. The great success which attended it, induced me to adopt the practice. Excepting indeed in one or two cases, I pursued it altogether.

The mode of treating this disease by emetics was first proposed by Dr. Joseph Klapp. The reasons which led him to it, are laid down in a paper† presented by him some few years ago, to the profession. It is deemed unnecessary here to detail them. The success of the plan of this “very

* A pretty full account of the treatment of this disease, recommended by the Professor of the Practice of Physick in the University of Pennsylvania, is contained in the first number of this Journal. The objections to the unlimited use of emetics, there pointed out, we have since found to be confirmed by some of the European physicians. No disease is more manageable than *mania à potu*—so much so indeed, that the late Dr. Kuhn, among the very highest of our medical authorities, was known to declare, that after an extensive trial of different plans in our Hospital, he found none to answer so well, as confining the patient in a dark cell, to leave the disease spontaneously to work itself off. Though we do not go to this extent, we believe, that in most cases of the disease, little more are necessary than *quietude* and *rest*, which may be commonly attained by this kind of seclusion. The experience of many years, acquired chiefly in the Alms-House, teaches us, that sleep is the *sine qua non*, in the cure of this species of mania, and when effected, all difficulty is at an end. (EDITOR.)

† Vide Eclectic Repertory, vol. viii.

ingenious physician," has been signal. Of eighty-two cases of mania à potu, admitted into the Alms-House during the last two years, sixty-four were cured by this mode of treatment. Of the remainder, seventeen died and one was removed. Many of those who died, never had an emetic administered. They consisted chiefly of persons who had been sick several days previous to their admission: most of them were brought into the house in the typhoid stage—some of them were actually sent in *articulo mortis*, that they might find a coffin and a grave at the public expense. This is much more economical than the old practice. Gallons of alcohol, and large quantities of opium, are annually saved in this benevolent institution.

When a patient is in the trembling stage, a slight emetic, aided in its operation by the free use of some diluent drink, will generally remove it. To settle and comfort the stomach, some bitter infusion may be given with advantage. The emetic will most commonly prevent the approach of mania. But should it come on, all trembling, for the most part, instantly ceases. I have very rarely indeed seen tremors in the furibund state. The proper time to exhibit emetics, is as soon as the mania becomes fully established. It has been said that very large doses must be given. Eight or ten grains of the tartarized antimony, may indeed be swallowed without even producing nausea; combining, however, a few grains of the ipecacuanha with an ordinary dose of it, and vomiting is easily produced.

The formula used in the Alms-House, contains a scruple of the former with two grains of the latter, and I have very rarely seen it fail. Diluent drinks, however, should be given during its operation. Difficulty will be found in making the patient drink freely, but by constant and persevering efforts we can generally prevail on him to meet our wishes. These endeavours should be made by the medical attendant, and not left to the nurse. After vomiting ceases, the patient falls into a peaceful sleep, and awakes refreshed and composed. Though I have repeatedly seen a single emetic remove the maniacal symptoms, two are generally necessary. If they

do not succeed, a third should be directed, and blisters applied to the legs. These failing too, we must recur to further vomiting, provided the strength of the patient allows of it, and a blister is to be placed on the back of the neck. It is seldom any mania remains after this course. Between the emetics, the patient will be much comforted by some aromatic bitter, such as a decoction of serpentaria, orange peel and quassia. Good old porter, in small quantities, usually agrees with the stomach. The food of the patient should be light and nourishing: meats ought carefully to be avoided;—broths, rice and milk, mush and molasses, suit the case, and of these he will eat heartily.

Among the most unpleasant and troublesome symptoms with which we have to contend, is vigilance. To relieve this, an opium pill of one grain, may be given at night. This will generally answer well, though in some cases it fails, and in others, owing to peculiarities of constitution, its use is contra-indicated: in such cases we have to look for other remedies, and I have succeeded with the *tela arancii*, in doses of ten grains at night. My experience with it is inconsiderable, but I have often been assured by one of the House Surgeons of the Infirmary, by whom it was employed pretty extensively, that he had good reason to be satisfied with its anodyne effects.* Inquiries on this subject ought to be extended, and I have no doubt of its being found a valuable acquisition.

Next I am to speak of a remedy from which I have seen the most happy consequences. My allusion is to the Tincture of Hops. For its use as an anodyne in intemperate persons, I believe we are indebted to Dr. Physick; and in such cases it is decidedly the most important article with which I am acquainted. It soothes the watchful maniac

* About ten grains of this article possess as much composing power as a grain and a half of opium. As the situation from which it is collected appears to influence the quality of the web, it may be proper to observe that the article mentioned, was procured from the upper story of a barn in the country.—Another parcel, obtained from the garret of a factory in the Alms-House, was nearly inert.

into the sweetest slumbers, and prevents those unpleasant dreams of which he often grievously complains. He awakes in the morning composed, collected, and happy. No idiosyncrasy prevents its exhibition. The dose is one ounce at bed-time.

Though the bowels are generally in a constipated state, it is not proper to commence with purging. From repeated observation, I am led to suspect that no class of patients bear so ill this form of evacuation. In the generality of cases in which a spontaneous diarrhœa supervenes, a fatal issue may be expected. The combination of ipecacuanha and tartarized antimony abovementioned, is sufficient to induce and preserve a soluble state of the bowels.

The pulse, at first voluminous, might seem to a superficial observer to acquire reduction by the lancet. On more careful examination, we shall find it to give way on slight pressure, and under these circumstances venesection is dangerous. The loss of an ounce or two of blood, will very often occasion syncope.

The disease having run on for a few days, unassisted by art, spontaneous vomiting comes on, and which sometimes procures relief from all the symptoms of mania, though generally it is the precursor of the typhoid stage, a state which now and then occurs, even after the case has been properly treated. The remedies usually employed at this conjuncture in other low diseases are here proper, such as the volatile alkali with wine whey, brandy, opium, camphor, spirits of turpentine, musk, &c. and at the same time external stimuli are not to be neglected. Epispastics and rubefacients must be used freely.

It is scarcely necessary to state, that under these circumstances emetics ought to be avoided. The symptoms so plainly call for other means of cure, that no one would be so destitute of skill as to vomit the patient. Yet I have seen two cases in which emetics were given in this stage of the disease, in one of which it evidently hastened death, and in the other, where four or five grains of tartar emetic were taken, the medicine was no sooner swallowed than it

displayed its poisonous effects, and the patient expired. The fatal event in this case so immediately followed the exhibition of the emetic, that it was supposed the apothecary might have put up corrosive sublimate for the antimony, by mistake. But the chemical analysis of the gastric contents proved, that tartar emetic had been administered. Much discredit has been placed to the account of the emetic plan, by not attending closely to the state of the system.

In the management of this disease, great care is absolutely required. The affection is very violent, and the changes which take place, occur rapidly. I know of no disease whatever, requiring more watchful attention. The physician, after having determined on giving emetics, should be present at their administration, wait their operation, and assist the stomach in clearing itself of its contents, inspect carefully the discharges, and in a word, visit his patient as often as is compatible with his other duties.

Towards these unfortunate creatures, the most mild and tender treatment is necessary. Harsh language is never needed. "They are generally persons who have seen brighter days and happier fortunes. Desperate in their circumstances, and harassed by a thousand cares and mortifications, they have sought, perhaps unwarily, a temporary refuge in a practice, which proves too seductive to be resisted, and the habit of drunkenness, and its consequences, becomes confirmed. It is a fact, that a large proportion of these cases are to be met with among persons of some cultivation—sometimes among the sons of genius—still retaining a remnant of sensibility. Let us therefore bear in mind how much the heart of such an individual must have been wrung, in descending from a station of respectability and comfort, to become the degraded inhabitant of a *poor-house*. His punishment is ample, and it is our duty, in all our intercourse, to consider him as an object of sympathy, and to endeavour to soften the anguish of wounds, which we may not be permitted to heal."

ART. IV. *An Analysis of an Amorphous Garnet, from New Jersey, and of Fetid Sulphate of Barytes, from Albemarle county, Virginia.* By HENRY SEYBERT, of Philadelphia.

1. *Amorphous Garnet.*

THIS mineral was found at Hambro' furnace, near Sparta, Sussex county, New Jersey. It is accompanied by oxidulated iron ore. Colour, yellowish brown in the mass; when reduced to a fine powder, it is yellow. Lustre, resinous. Opaque. Fracture in one direction lamellar; in the opposite irregular. Scratches glass. Specific gravity 3.822. Fusible, before the blowpipe, into a black opaque enamel.

Analysis.

- A. 5 Grammes of the mineral, reduced to a fine powder and exposed to a red heat, after calcination, weighed 4.945 grammes; the loss in water, therefore, amounts to 0.055 grammes on 5 grammes, or 1.10 per 100.
- B. The 4.945 grammes, the residue of the calcination, (A) were exposed to a red heat, in a silver crucible, with 20 grammes of caustic soda. The fused mass of a dark green colour, was treated with water; the solution was also deep green, an excess of muriatic acid was added to it; it was evaporated to a dry gelatinous mass, then treated with water, acidulated with muriatic acid, and again moderately evaporated; more water was then added and it was filtered. The siliceous thus obtained, when washed and calcined, weighed 1.64 grammes on 5 grammes, or 32.80 per 100.
- D. By adding hydro-sulphate of ammonia to the solution, (B) a black precipitate was formed; the precipitate, treated in the usual manner with caustic soda, acetic acid, and a sub-carbonate, was found to be composed of tritoxide of manganese 0.342 grammes, equivalent to 0.316 grammes of protoxide on 5 grammes, or 06.32 per 100. Alumine 0.153 grammes on 5 grammes, or 3.06 per 100; and peroxide of iron 1.495 grammes, equivalent to 1.378 grammes of protoxide on 5 grammes, or 27.560 per 100.

248 Seybert's *Analysis of an Amorphous Garnet.*

D. After the separation of the precipitate, (C) the liquor was treated with the oxalate of ammonia, the precipitate obtained, washed and strongly calcined, yielded 1.39 grammes of lime on 5 grammes, or 27.80 per 100.

E. Ammonia and phosphate of soda were added to the filtered liquor, (D) a precipitate of ammoniacal phosphate of magnesia ensued, which, washed and calcined, yielded 0.169 grammes of phosphate of magnesia, equivalent to 0.062 grammes of magnesia on 5 grammes, or 1.24 per 100.

According to the above Analysis, this Garnet is composed, in 100 parts, of

A. Water	01.10	
B. Silix,	32.80	containing oxygen 16.49
C. { protoxide of manganese	06.32	01.38
{ alumine,	03.06	01.42
{ protoxide of iron,	27.56	06.22
D. Lime,	27.80	07.80
E. Magnesia.	01.24	
	<hr/>	
	99.88	
	100.00	
	<hr/>	
	000.12	Loss.

An assay, of this garnet, in the forge, yielded 19.60 per 100 of metallic iron. The 27.56 per 100, of protoxide of iron, obtained in the humid way, are equivalent to 21.13 per 100 of metallic iron.—We then have the following comparative results, viz.

<i>Per 100 parts.</i>			
Humid way,	21.13	Metallic iron,	
Moist id.	19.60	id. id.	
	<hr/>		
	1.53	Difference.	

N. B. I examined this garnet, when a pupil in the Royal School of Mines, in Paris.

2. *Fetid Sulphate of Barytes.*

COLOUR, in the mass white with shades of bluish grey. Powder approaching to white. Lustre, splendent. The colourless portions were transparent, the coloured opaque. Form indeterminate. Fracture, lamellar. Fragments, rhomboidal. Specific gravity 4.379. By friction, it emitted a very strong fetid odour. Before the blowpipe, it decrepitated and became colourless.

By preliminary experiments, I ascertained, that this mineral contained neither silex, alumine, lime, magnesia, oxide of iron, oxide of manganese nor strontian : I, therefore, proceeded to make the analysis in the following manner.

- A. 5 grammes reduced to an impalpable powder, were exposed to a red heat : when the calcination was nearly finished, it was stirred, to promote the disengagement of the volatile matter. After the calcination, the powder was perfectly white, and by friction, it emitted no odour : it weighed 4.995 grammes, the loss, during the calcination, therefore amounts to 0.005 grammes on 5 grammes, or 0.10 per 100.
- B. The 4.995 grammes of calcined mineral, were boiled during three hours, with a solution containing 25 grammes of sub-carbonate of soda. It was then filtered, the liquor was saturated with muriatic acid, and boiled to expel the carbonic acid ; muriate of barytes was then added to it, the sulphate formed, when washed and calcined, weighed 2.38 grammes on 5 grammes, or 47.60 per 100.
- C. The residue on the filter, (B) was washed and calcined ; after the calcination, it weighed 4.59 grammes, it was then boiled with muriatic acid, the carbonate of barytes was thus dissolved, and there remained 2.52 grammes insoluble.
- D. The 2.52 grammes of insoluble matter (C), were fused in a platina crucible, with three times their weight of sub-carbonate of soda : the fused mass was treated with water, and the solution was filtered : the residue, on the fil-

ter, washed and calcined, weighed 2.1 grammes, and was completely soluble in muriatic acid.

E. The solution (D), was saturated with muriatic acid, and as in (B), was boiled to expel the carbonic acid; then, by the addition of muriate of barytes, it yielded sulphate of barytes, which, washed and calcined, weighed 2.47 grammes on 5 grammes; or 49.40 per 100.

Therefore, the constituents of this mineral are,

Per 100 parts,

A. Volatile matter,	00.10
B. and E. Sulphate of barytes,	97.00
	<hr/>
	97.10
	<hr/>
	100.00
	<hr/>
	002.90 Loss.

ART. V. *An Account of the Yellow Fever of Charleston, South Carolina, as it appeared in the year 1817.* By HENRY DICKSON, M. D.

MY design in this essay, is to treat of this formidable disease as it appears in the city of Charleston—to detail the practice which I believe is there attended with the greatest share of success, and to examine the question so long and so warmly agitated, as to its importation or home production; its contagious nature; its specific character, &c. &c.

To effect my purpose, I shall describe it more particularly as it prevailed during the summer and autumn of the year 1817; and this description will serve as a delineation of its general character and appearance in our climate.

The spring of this year was distinguished, in our city, by the frequency and violence of the common diseases of children. Great numbers were carried off by cholera and atrophy, and the process of dentition was unusually dangerous. The summer set in with such floods of rain, as had seldom or never before happened within the memory of the oldest inhabi-

tants. But these seemed to fail of their usual effect in producing coolness of the earth and air, for the weather was steadily warm, though perhaps not so hot as the average of our summers. The range of the thermometer was generally between 82° and 88° of Fahrenheit. Thunder storms, which in ordinary seasons are of frequent occurrence in our climate, were observed to be extremely rare, as well as slight.

The country fever, a form of bilious remittent which has obtained this name among us, as chiefly seizing those who have exposed themselves by sleeping among the marshes of our low country, after the coming on of warm weather, made its appearance this year earlier than usual, and attacked many who considered themselves perfectly safe, as having removed to the city at the usual period, about the end of May. Its attacks were also peculiarly violent and fatal, the number of deaths from it being greater than had ever been known before.

The common bilious fever of our climate was also more than usually severe, and numerous cases of it were recorded in our bills of mortality. This concurrence of circumstances, however, did not seem previously to create any dread, though it is evident from them, that our atmosphere was infected with some principle unfriendly to life and health.

It was not until the 23d of July, that the yellow fever appeared among us, and spreading with considerable rapidity, soon excited universal alarm.

The first case which I have been able to ascertain, was that of a Mr. M'Coy, who lived in a low and dirty part of the town, on East Bay street, between the Market and Exchange. Dr. P. G. Prioleau was called to visit him, on the 23d of July, and in consultation with Dr. J. Johnson, pronounced his disorder to be the yellow fever. This man died on the 28th of July, and on that day two sailors, (by the names of Cutter and Gold,) were carried into the Marine Hospital, whose deaths I find marked in the Hospital books, one on the 30th, the other on the 31st, of yellow fever. After this, the disease soon reached every part of the city, observing no regularity in its mode of spreading.

In former years, at least for a considerable time back, this pestilential disorder had confined itself entirely, or chiefly, to strangers, or new-comers, who were not yet CLIMATIZED, or in the West India phrase, had undergone no seasoning: and it had scarcely ever been known, within a long period, to affect a single adult native, or old inhabitant. From this peculiarity, it has been commonly termed among us, the *stranger's fever*. But it showed early this year a disposition to break through those rules which it seemed to have prescribed for itself. A young man of about seventeen years of age, who had been brought up in our Orphan House, and had constantly resided in town, was seized near the beginning of August, and died in a few days, with the most evident symptoms of yellow fever. He was a blacksmith, and worked at his trade on East Bay, not far from the Market, a situation which has been mentioned before as low and unhealthy. A negro man, who belonged to Mr. Russell, and was well known as a steady resident for a long series of years, died soon after, also of yellow fever. Several other instances of the same kind occurred, and produced a great increase of terror among the citizens, as proving that no length of residence was a perfect security.

The symptoms with which this malignant epidemic made its appearance, were somewhat irregular, varying in different cases. It would not be very easy to distinguish them into the *peculiar* or *characteristic*, and the *common*, or such as may occur in other fevers. At the beginning of the attack, every physician, however great his intelligence, was often liable to be deceived. Hence it became at last the general rule, to treat all cases, attended with any the slightest suspicious circumstances, as yellow fever, and it was impossible to devise a better mode of conduct.

When an individual who had lately arrived from Europe, from some State north of us, or even from our own interior country, was seized with pains in the head, back, and limbs, pain in the epigastrium, with vomiting or inclination to vomit, great restlessness and anxiety, deep sighing, with a flushed countenance and a red and watery eye, a dry hot skin,

and an active pulse, no one could hesitate to pronounce it immediately an attack of yellow fever, and treat it as such without delay. The symptoms, however, were usually by no means so strongly marked, and it often happened, especially at the commencement of the prevalence of the disorder, that time of immeasurable importance was lost, in the use of remedies inefficacious, or however powerful in themselves, unsuited to this form of fever.

The patient often complained first of chilliness, though there was not usually any formed chill or rigour. After this, or as sometimes happened, at first, pains were felt in the head, back, and limbs, for the most part very severe. The *headache* seemed chiefly to affect the forehead, and frequently continued in a distressing degree through the whole course of the malady. I saw one case in which it was so violent, as to occasion constant watchfulness, and repeated screamings: nervous appearances supervened, and it was for some time dreaded that the case would terminate in convulsions. The determination to the brain was in many instances so great, even at the commencement of the attack, as to produce some confusion of thought, or delirium. The lower were much more commonly affected than the upper extremities. The pains seemed to be fixed mostly in the muscular parts, though in a few instances confined to the larger joints, as the knees, &c. The aspect of the eye, supposed to give one of the characteristic marks of the disease, was almost invariably the same—inflamed, very sensible to light, red and suffused, well described by Jackson as resembling the state of the organ caused by exposure to the smoke of green wood. Pain was felt as if in the very centre of the eye, and more particularly, I observed in several instances, when the eye was moved from side to side without turning the head. The stomach, which seems truly to be “the throne of the disease,” was generally irritable from the first, easily excited to the action of vomiting, which when it came on, whether spontaneously or by any thing taken, was uncontrollable, or restrained with difficulty. The patient complained in most cases of a feeling of soreness at

the pit of the stomach, which was much increased by straining to vomit, or by pressure on the epigastrium. This pain was sometimes not at all felt, except when pressure was applied to the part, or when the vomiting was attended with much retching or straining. There was also a great degree of restlessness and anxiety, vast oppression about the præcordia, with heavy, deep, and frequent sighing.

The respiration was slow and laborious, or embarrassed, hurried and irregular. The countenance was peculiar and striking, so much so, that it was thought by many to mark the peculiar character of each case. The aspect was somewhat distressed, the face flushed and turgid, and this, with the watery redness of the eye, gave to the whole a most singular wildness and fierceness, combined with an expression of sadness and terror. The skin was mostly hot and dry. Cases however occurred, in which it continued through the whole, cool, moist and pleasant, as in the natural state. One patient, (Harper,) was covered with a fine sweat during his four days illness in the hospital, where he died.

The yellow tinge, from which this disease has derived its name, was in a few instances soon perceptible, though in a far greater number, not at all to be observed until the second stage. There was a peculiar feeling of constriction, or hardness and want of pliability in the skin of most patients, combined with heat and dryness.

The pulse, assuming the highest rank among our means of forming an opinion in cases of common fever, seemed very frequently, in the malady under consideration, to have no correspondence with the state of the system. I have found it in some violent attacks, very little more frequent, full, hard or tense than natural. Generally, however, it was in the first stage increased in volume—hard, quick, jerking and irregular: sometimes small, slow, and corded, giving to the finger the feeling as if oppressed.

The bowels were very torpid, and the constipation was with difficulty removed by the most active cathartics. When stools were procured, they were often black or dark colour-

ed from the very first. The tongue presented a vast variety of appearances, sometimes moist, soft and clean, at others with a smooth whitish coat: again, rough, furred, hard, dry, brown or black, or of a yellow or orange colour. When much furred, there was usually an unpleasant taste in the mouth. The thirst was for the most part excessive, the patient continually begging for drinks. But, if I am not mistaken, water was as often desired on account of the agreeable sense of coolness which it produced in the burning stomach, as for the relief it gave by quenching thirst.

. These symptoms constituted the *first stage* of the disorder, the duration of which varied somewhat with the different circumstances of different cases. On the third or fourth day, according to these circumstances, the remission so often described by writers, took place. The headache was relieved, the pain in the back and limbs disappeared, the skin became softer and moister, the pulse so natural as hardly to be distinguished from that of health, the breathing was easier, the pain and irritability of the stomach were lessened, the eye was less inflamed, and as the redness decreased, a yellow tinge became more and more perceptible on the adnata. The patient seemed to be in a good degree freed from his horrible anxiety and depression of spirits, and to be revived once more by the heart-cheering influence of hope. But hope here, as in almost all other human affairs, proves in general a deceiver, and a short time serves to dispel her illusions. In a few hours, (if not previously controlled by our remedies,) the disease returns with a violence infinitely disproportioned to the powers of resistance in the constitution.

Of this *second stage*, the most prominent feature is the very great debility under which the patient labours. His pulse sinks, there is great muscular prostration, and if his skin has not been discoloured before, a yellow hue is now discernible, particularly on the forehead and breast. The irritability of his stomach is increased, nothing can be retained, and the vomiting, which was before attended with severe straining and retching, becomes very easy and frequent.

A fluid of a dark colour, so well known by the name of black vomit, is thrown off, usually in large quantities, seeming often to be ejected from the mouth with little or no effort on the part of the patient. The respiration is still more difficult and hurried, with frequent sighing, and intolerable distress about the præcordia, attended occasionally by delirium. The alvine evacuations are large, and consist of a fluid apparently of the same kind with that constituting the black vomit. These symptoms increasing, death soon relieves the miserable patient from sufferings dreadful to contemplate.

The duration of the disease was very various in the different cases—in some instances, proceeding so rapidly to its close, that time was scarcely allowed for the exhibition of any remedies. At other times the progress was much slower, and the chief differences in duration were almost exclusively confined to the second stage. The first was, in all, of nearly the same length, lasting from *thirty to sixty hours*, except in those cases in which the powers of life were at once prostrated by the shock of the pestilence, and crushed beneath its overwhelming violence.

By no plan perhaps, could I give a better view of the average duration of the fatal attacks of the yellow fever, than by extracting, (as I have done,) from the books of the Marine Hospital, the different dates of entrance and of death. The result obtained in this way, cannot be very inaccurate, for where the attack was so violent, as it must probably have been in these cases, it is not likely that the friends of the sick, would be guilty of any delay, in sending them to the hospital. On looking over the books, I find recorded eighteen deaths. Of these, two died on the day of their admission into the hospital, one on the second day, three on the third day, four on the fourth, one on the fifth, one on the sixth, one on the seventh, one on the ninth, one on the eleventh, one on the twelfth, one on the thirteenth, and one on the nineteenth. I am induced to believe, that a majority of cases terminate on the fifth and sixth days, both from the facts stated here, and from observations on

those deaths which occurred within my knowledge out of the hospital.

The recoveries from yellow fever were, in general, very slow, the convalescence lingering and tedious, and in many instances the convalescents were much troubled by the formation of large abscesses on the body and limbs, which did not suppurate kindly, and were very difficult to heal.

As has been already stated, strangers were most liable to the attack of yellow fever. Those from northern climates, Europeans, more especially the English, Irish and Scotch, were assailed violently, probably from their national habits and modes of life. The French and Spanish, who are nationally remarkable for temperance in food and drinks, had the disease on the contrary, in a somewhat milder form. Natives also of our healthy back country, and even those from our marshy sea-coast, seldom escaped: and although northern constitutions were most subject to the disorder, persons from our southern sea-coast were by no means perfectly secure. The first instance I saw of an attack in such circumstances, was of a young man from a little seaport of St. Mary's, in Georgia. This of course made a deeper impression on my mind, as I had previously been under the common mistake of supposing that having been born, or resided in the south, constituted a good degree of safety. Children, especially infants, being indeed in some points of view, strangers, were peculiarly liable to the attack of this disorder, and its ravages among them were dreadful. The mothers of Charleston will long remember, with tears, the unhappy summer of 1817. Even adult natives, and old residents, as before mentioned, were not entirely exempt. Cases of seizure among these, though not very numerous, were by no means rare. The attack was violent, and the progress of this disease rapid, in the robust and plethoric—as well as in those who had been much exposed to the heat of the sun, the chillness of our night dews, &c. &c. The intemperate rarely survived, and their illness proceeded rapidly to its termination. But the most affecting mortality was that among young children. Remedies seemed here of little

avail, and it was often a melancholy lot of the parent and physician, to watch without being able to arrest, or even to retard, the rapid progress of the dreadful malady, or even relieve those pangs, from which the miserable little sufferer found refuge only in the grave.

By referring to the return of interments made to the Medical Society, I find the whole number of deaths occasioned by the yellow fever, to amount to two hundred and seventy-four. The progress, increase, and decrease of the epidemic will be shown, by extracting from their book the number of interments in each week. In the first week of its appearance, there were three deaths, the first of which, M'Coy, I have already noticed, on the 28th of July. From the 3d to the 10th of August, the deaths were sixteen; in the last week of that month, from the 24th to the 31st, the deaths were thirty-three. In the first week of September, twenty-six were interred. The malady now increased rapidly until the last week of the month, when forty-two died of it. On the 21st day of September, there were buried ten bodies dead of yellow fever.

At this juncture, a general despondency prevailed. Great numbers, as well of our old citizens, as of the new residents, fled from the city, and those who remained, had their minds filled with dark fears and anticipations.

In this unhappy state of things, an unlooked for, and extraordinary change, suddenly took place. Whatever may have been the cause of the disease, it henceforward assumed a much more manageable form, and became also less frequent in its attack. From the 5th to the 12th of October, only nine died of it, and in the week preceding twenty-three. After this, only one or two instances were met with in each week, until the 27th of November, when John Brown, an Irishman, was buried. He was the last case of which I have any knowledge.

It is not my design to recount the various modes of practice pursued by our physicians in this disease, varied as it was, by their different theoretical views. But I shall merely detail that which seemed to me, to be attended with

the greatest success, and became at last the course most generally adopted.

It consisted, in the first place, in endeavouring to open the bowels, which I have said, were universally in a state of constipation. This was best done by calomel alone, or combined with jalap. Exhibited by itself, it was less apt than any cathartic to be rejected, and which was an incalculable advantage. Having accomplished this object, the mercury was continued until ptyalism was induced.

Many other plans were tried and ultimately abandoned. The testimony indeed of every practitioner of our city, whom I have ever heard speak on the subject, is in support of the mercurial treatment. In the whole of the practice which I had an opportunity of seeing, I cannot recollect a single case in which salivation was induced, before what is called the second stage of the disorder, which terminated unfavourably. It must be acknowledged, that where this effect was so long delayed, as not to be apparent until the patient had begun to sink, it not only seemed to increase his last sufferings, but even, for the most part, somewhat to accelerate his death. Examples, however, are not wanting, though rare, in which the progress of the disease has been thus arrested after it had advanced into the second stage. Were it demanded, I could recite numerous cases, to prove the efficacy of mercury in yellow fever. Declining this, I shall merely state as a general fact, with hardly any exceptions, *that there were no recoveries, unless the mercurial action could be produced in the constitution, and very few deaths, where this general affection of the system was brought on before the state of prostration, or second stage, had arrived.*

How mercury acts in curing fever, is a question in such obscurity, that it would be useless and presumptuous in me, to attempt to elucidate its mode of operation in the particular form of fever under review. But having so often employed the word salivation, I find it necessary to explain, that I do not imagine or intend, that the affection of the salivary glands, or the increased secretion of their fluid, has any thing to do with the case. I merely use the term,

to express that state of the system, of which it is usually supposed to be the sign, in which all the various organs and their functions are thought to be under the dominion of the remedy, and the patient is said to be MERCURIALIZED.

It has been objected to this plan of treatment, that the action of mercury on the constitution is so slow, so long in being excited, that it cannot be trusted to in the management of this rapid disease. It is, perhaps, not difficult to account for the prevalence of this opinion. Those who hold it, have evidently been content with the same practice in this disease, which they have seen successful in other cases of fever. But the stroke which would crush a pigmy, will not even shake a giant. Mercury has been happily denominated "the Sampson of the Materia Medica," and it is necessary that he should put forth all his strength, and exert all his energies, in the contest with this mighty foe. The doses of the medicine must be very large, and repeated at no long intervals. Not less than ten grains of calomel are required every two hours, and in urgent cases, the quantity must be increased and the interval shortened. Employed in this way, experience has incontestably proved, that it will, in the highest excitement of yellow fever, produce its effect sufficiently early in the majority of cases to save life.

The first stage of the disorder lasted, as I have said, from *thirty* to *sixty* hours, and salivation was often induced, as I have myself seen, in from twenty-four to thirty-six hours.

To those who would dread the permanent effects of such large quantities of so powerful an article on the constitution, I would reply, that there was no alternative. To what other practice could we have had recourse with the hope of success? It has not been sufficiently noticed by authors, that mercury, when administered in these large doses, is by no means as apt to do harm to the patient, as when given in smaller portions to the same amount. Yet such I am firmly persuaded, is the fact.

I had an opportunity of contrasting the two modes of exhibition, and though the larger doses were much more

commonly given, and of course I saw many more instances of salivation brought on in this way, I never met with an instance in which any injury was done to the constitution, and the affection of the glands lasted, comparatively speaking, only a short time. On the other hand, I have fresh in my recollection three cases, in which the most serious mischief, sloughing of the cheeks, gums, &c. was occasioned by calomel, taken at the rate of two grains every two hours. Besides, how much less frequently do we hear of bad consequences from mercury exhibited hastily in fever, than in those chronic diseases for the cure of which the system is slowly saturated with it, as syphilis, dropsy, &c. The ptyalism in the latter cases too, is usually much more profuse, and long continued. Is this properly explained by the supposition, that mercurials given in large quantities diffuse themselves more generally over the body, and escape through the different emunctories, thus avoiding that determination to particular parts, which has been so much dreaded?

Calomel is not useful, as some have asserted, merely by its purgative property, since the most severe and long continued purging by other cathartics, did not, in any single adult case which I saw, even retard the progress of the complaint. I say *adult* cases—because, I believe purging, particularly with the neutral salts, to have been much better adapted to the management of the disease as it appeared among young children, and I was fully convinced of its utility in these cases.

Calomel, for the most part, did no more than produce one or two alvine evacuations a day, and this seemed amply sufficient. It did not indeed appear to me necessary that any thing more of this kind should be done, after the first few hours of the attack, than merely to empty the large intestines now and then by enemata.

But while thus attending to the main points, we should by no means neglect the local symptoms. In all cases where these local affections, particularly the headache, were very severe at first, if the pulse was such as to permit it.

stages. With equally erroneous views, has it been denominated a bilious remittent. By Dr. Pym, a late writer, it is called Bulam fever, believing it to have been derived from Bulam, an island off the coast of Africa.

As he has displayed in his treatise no little force of argument and industry of research, his doctrines are well worthy of an attentive consideration. The identity of the disease I have described, with that which occurred under his inspection at Gibraltar, Malta, and elsewhere, will, I think, be fully established by a comparison of the symptoms, making of course the proper allowances for differences of climate, constitution, &c.

That the yellow fever is an endemic of our climate can scarcely be doubted. The facts which go to prove this point are so numerous and clear, *that the contrary opinion is not held by any physician of this city with whom I am acquainted.* I have been informed by Dr. P. G. Prioleau, whose statement on this, as on all other subjects, is entitled to the highest consideration, that during his long and extensive practice, no single summer has past, in which he has not met with some case or cases of yellow fever.

It is impossible to account for the appearance of the disease among us every year, on the plan of importation. If such were the fact, it is evident that seafaring men, and that class by business connected with them, would be the most liable to be attacked. During several seasons, however, not a single case was brought into our Marine Hospital, so that sailors often escaped entirely, while others were seized, notwithstanding the fatigues and exposures which, in all southern ports, mark them as peculiarly the victims of fever.

M'Coy, the first case in 1817, clearly appeared to have had no connection with any shipping, and was in no way exposed to contagion or fomites, before he was taken ill. Can these facts be made to agree with the supposition that the disease was imported into our city?

The remote or predisposing causes of yellow fever, like those of all other fevers, are enveloped in obscurity. Of

the exciting, we have more knowledge, as they fall more fairly under our cognizance. The disease has appeared among us in every variety of season, though it is more prevalent and more fatal in the very wet than dry summers. That the putrefaction of animal or vegetable substances may increase its violence, is sufficiently probable. But I contend, contrary to the opinion of Dr. Bancroft, that these miasmata act merely as existing causes, for when applied alone, as in many other marshy countries, (and even within a few miles of our city during the prevalence of the epidemic,) they will indeed produce *disease*, though not *yellow fever*.

Being proved, I think, to be endemic of, and not imported into our city, it next becomes proper to inquire, whether the yellow fever is a specific disease, or merely, as is asserted, a higher grade of the common bilious remittent of the climate. After as careful an examination of the subject as I have been able to make, I am inclined to believe it *a disease sui generis*. Yet, on the other side of the question, are ranged many very respectable authorities, and it deserves certainly, a more minute investigation than my limits will allow.

It must be acknowledged that the points of similarity between the two cases are very striking, and that their diagnostics are drawn with difficulty, even by the most attentive and experienced observer. I do not think, indeed, that in the first stage of yellow fever, there can be pointed out any one distinguishing symptom. We can only judge of the complaint by the concurrence of all, or the greater number of those which have been enumerated. I have myself seen, in separate cases of bilious remittent, each of the various symptoms met with in yellow fever in its first stage, excepting perhaps the burning sensation usually felt in the stomach. As the disease advances, however, it develops itself. The time of the *remission*, (as it is improperly called,) the recurrence of the other bad symptoms without any return of febrile excitement—the darkness of the stools, and

finally, the black vomiting, place the matter beyond doubt or controversy.

By those who believe yellow fever to be only a higher grade of our bilious remittent, it is asserted, that the differences perceptible are slight, and easily to be explained by the differences of constitution, habit, or other circumstances, between the subjects of the various attacks—natives and old inhabitants being exempt from, and new residents almost exclusively liable to the attack of the disease. The constitution of a native, say they, is assimilated or suited to the climate, and made familiar with the numerous exciting causes of fever, which always exist among us, with a greater or less degree of force. Hence he is not, nor in the nature of things can be, so highly affected by the increased power of these exciting causes, as strangers or new comers, to whom the usual and most healthy state of our atmosphere proves a source of disease. A stranger and a native being exposed to the same quantity and force of exciting cause, the former, they affirm, will on account of the difference of predisposition, be seized with yellow fever, while the native will have bilious remittent in its common form. When their peculiar causes act with unusual violence, certain cases even among natives will rise to the rank of yellow fever. Thus in 1817, this peculiarity of circumstances existing, several of the natives and old residents died of that complaint, whereas in other seasons, only one or two sporadic cases will occur, and those invariably among strangers. This statement is certainly very plausible, and in many parts, must be acknowledged to be near the truth.

The fact, however, should be attended to, that even when two strangers are placed under the same exposures, one may be affected with the one disease, and the other attacked differently: the first dying with ejection of black vomit, and the second with vomiting of pure bile. Now, if I am not deceived, arguing from the very principles of my opponents, this is clear proof of a specific difference in the two cases, for there exists here the same want of assimilation of constitution to climate, in both instances, and I am unable

to account for the variety of appearances without allowing a variety in form of disease. That instances of this sort do happen is easily shown, by a reference to the medical history of almost any of our summers.

When an attack of any disorder produces dissolution, after passing with rapidity through its several stages, I should be apt to think it an instance of that disease in its highest grade. Thus, when a robust adult is seized with bilious remittent, and dies of it in as short a time as another dies of yellow fever, each with a peculiar set of symptoms, I cannot understand why the latter should be said to labour under the same disease with the first, but merely a more aggravated form. This mode of inquiry would tend to do away all distinctions between various diseased actions—an error full of absurdity, if not of mischief.

With regard to the nature of the black vomit, I believe it to be a secretion from the stomach, where it is formed in astonishing quantities. It is not, as many think, bile in some manner vitiated. This latter is a mucous fluid, homogenous in its appearance, of which the patient in the yellow fever, rejects from the first, little or none. The black vomit, when thrown up, possesses none of its qualities, as taste, smell, colour, &c. which it certainly would if it were in any way altered, for the conversion must and would be gradual. It shows on the contrary, at once, dark coloured flakes swimming in a lighter liquid—becoming afterwards more uniform, resembling coffee-grounds, and then puts on the appearance of a mixture of soot and water. But the question is settled beyond dispute by the fact, that the stomach of every one who had died with the black vomit, was found on examination, to contain some of that fluid, while the gall-bladder and bile-ducts were entirely empty, or filled with bile of much the usual appearance.

Nor is the black vomit, as some have supposed, a mixture of grumous blood from the vessels of the stomach, with mucus and bile. The difference is very obvious, immediately on viewing together, so as to allow of fair comparison, fluids of these two different kinds. A solution of

blood, no matter how dilute, will always tinge white paper of a slightly red hue, and show in a white bowl or bason, at least round the edges, a reddish cast, not at all perceptible in black vomit. Nor does it consist of flocculi, or sphacelated portions of the villous coat of the stomach. Moseley, Pym, and other writers of no little authority, have asserted that mortification of this coat of the stomach regularly takes place in fatal cases of yellow fever, and they attribute to this, the peculiar appearance of the matter thrown up. Not only is this disproved by the well known fact, that recoveries have taken place after the occurrence of black vomit, but in none of the examinations of bodies dead of yellow fever, which I knew of as being made in 1817, (and numbers were made) was any gangrenous state of the stomach discovered; no, not in a single instance. The inflammation which is co-existent in the stomach, with the secretion of the matter of black vomit, may, and on their assertion, I willingly allow, often does run into mortification, though this is far from being uniformly the fact. I have myself assisted in collecting this fluid out of stomachs, in which not the slightest erosion was discoverable, only presenting on their internal surfaces, the scarlet blush of active inflammation.

Nor is it only in this disease, that the stomach takes on the disposition to secrete matter possessing these peculiarities. A liquid very similar to the black vomit, is ejected sometimes in puerperal fever. By an eminent and experienced physician, I am assured too, that he has several times seen such matter, in the easy vomitings of pregnant women, without any alarming symptoms,—thus, occurring in complaints, the latter especially, in which we know the stomach alone to be affected, and that sympathetically.

I shall now extract, from a detail of the dissections of bodies at the Marine Hospital, presented to our Medical Society, such parts as mark the specific appearances of yellow fever. They tend strongly, I think, to establish the facts I have stated, as to the distinct nature of the disease.

"Harper had black vomit on the fifth day of the disease, died on the ninth :—The external surface of the body, the viscera, &c. were of a slight yellow hue. The stomach contained several ounces of a black liquid, resembling in every respect the black vomit, previously thrown up by the patient. No external marks of inflammation, except a slight enlargement of the blood vessels near the cordia. The internal coat of the *stomach* and intestines were much inflamed, particularly about the cardiac orifice. The *liver* was examined with great care and attention, but no marks of inflammation, nor the least appearance of disease in other respects, could be traced. The gall-bladder was filled with a fluid, one half of which had the *usual appearance* of *bile*, the other part was of the consistence of dregs of honey. The ductus communis choledochus was empty."

"Clap had black vomit on the fourth day of his disease, always, however, mixed with *blood*. He died on the fifth day. Very little yellowness—his stomach contained a fluid, resembling the black vomit mixed with blood—poured on white paper, the stain of blood was evident, while particles of black matter were very visible on the paper. The external surface slightly inflamed about the cardiac orifice—the internal surface *much inflamed*, with enlarged blood vessels. The *liver* appeared perfectly natural. The parts in the neighbourhood of the gall-bladder, were tinged with *bile*—the gall-bladder contained a dark coloured fluid, which was very glossy—not resembling, in the least, the black vomit in look, smell, &c."

The following case clearly proves that the inflamed appearance of the stomach, is not owing to the action of medicine previously taken. "Evans came in on the fifth day, and died in a few moments after admission, having taken, as he himself asserted, and was ascertained afterwards, nothing during the whole course of his illness, except a spoonful of camphorated mixture, and a wine glass full of decoct. rad. seneg: The inner coat of the *stomach* presented all the marks of inflammation. The *liver* was perfectly free from

every appearance of disease. This is surely sufficient to prove incontestably, the specific nature of yellow fever.

Next I proceed to examine the question still in great dispute—whether this disease is contagious. Of this point, Dr. Hosack in New York, and Dr. Pym in Europe, have treated very ably. The ingenuity of the first, and the industry and strength of reasoning of the latter of these writers, have brought forward a great mass of facts and arguments in support of their opinions. Yet I cannot help thinking that even from their own works, evidence sufficient to prove the contrary, may be collected. My space, however, confines me to the contracted view I at first proposed to take of the subject, and I shall go on to speak of the disease, only as it exists in the city of Charleston. Granting that I have succeeded in showing that yellow fever is endemic of our climate, the point of its non-contagiousness will need very little further support. Not being imported among us, it can originate without contagion, and hence we have a right to believe that it may be, and is propagated independently of it. But to enter more fully into the discussion—In an affair that comes so immediately under the cognizance, and observation of every one, I do not think that the notions of the multitude should be disregarded. All eyes among us, of the ignorant and of the well-informed, of the citizens in general, as well as of medical men, are turned to the state of our city, as regards her internal police, for the causes of the pestilence whenever it makes its appearance. We do not look for safety to the absurd and inconvenient Quarantine laws—nor to the abandonment of, and non-intercourse with the miserable sick—nor to the prohibition of intercourse with infected spots—but to the industry of our scavengers, and the kind and providential dispensation of storm, sunshine, and rain. No precautions are taken by our physicians, our nurses, or our common people, to avoid contact with the diseased, nor when obliged to undergo such exposure, are intent upon the means of destroying or counteracting the matter of contagion. The sick of yellow fever is regarded and attended to, by his friends and acquaintance, just as if

he were pronounced to be affected with dropsy or pleurisy. The conduct of the people speaks the plainest language, and is the language of truth.

But under our burning sun, ought not this malady, the nursling of hot climates, possess peculiar power? Endowed with a contagious property, should not this act with at least equal vigour and energy, as it does when transplanted into regions farther north? Did such contagion exist, the careless disregard of all precaution, which I have mentioned, must long ago have entirely depopulated our city. Yet we find, on comparing the medical histories of the various portions of our country, that we do not suffer as much as our brethren of the north, by this epidemic, which when it enters their gates, commits such immense ravages, in despite of the very great efforts made under the strong impression of its contagiousness, to prevent its spreading.

Where did this pestilential disorder originate? In Bulam, says Dr. Pym, whence it was carried into the West Indies. Is it always in existence in these latter islands, or must we always refer in each year to Bulam for its source? The argument has been so often reiterated, (that the contagionists seem now to have become callous to it,) that if the disease be put an end to by cold, it must clearly proceed from some principle in the atmosphere, and conversely, if propagated by contagion, this contagion ought, when the weather is cold, act with greater force than in summer. This undoubtedly follows, since the degree of concentration must then be greatly increased, as ventilation cannot be freely practised, and such we find to be the fact with respect to typhus and other contagious forms of disease.

By Dr. Hosack, the best defence of his side of the question has been made. Considering the disease to be contagious only in certain contingencies, he has left himself opportunity to elude thousands of the most cogent facts. The circumstances calculated to favour and insure the action of contagion are, according to his hypothesis, dirty and ill ventilated apartments in close situations. Now if it can be proved that the disease, when applied under these very circum-

stances, has failed, and failed repeatedly, to propagate itself, the conclusion against him will, I think, be irresistible. The houses of the people living in our low country, within a day's journey of the city, are remarkably ill constructed and small, usually crowded, dirty and confined. No single instance however has ever been known, from the earliest times, of the disease, when carried out into the country, being there propagated. By Dr. Hosack himself, Dr. Lining is quoted as observing, in his description of the yellow fever of Charleston in 1732, 1739, 1745 and 1748, "That though the infection spread with great celerity through the town, yet if any from the country received it in town, and sickened on their return home, the infection spread no further, not even to one in the same house."

The disease appears in certain years even in the city, and dies away, without extending itself. No precautions are taken on these occasions to prevent its spreading. Is this consistent with the character of a contagious disease?

It is affirmed by Dr. Hosack, that an interval of several days has always been observed in New-York, (from 8 to 12 or 14,) between the first case of the disease and those which succeeded. Nothing of this kind is ever noticed among us.

No connection or communication can often be discovered between those attacked, nor can it ever be traced from individual to individual, or from street to street, as appears to have been frequently done elsewhere.

Like other epidemics, it occurs almost simultaneously in the most distant parts of the town, wherever it finds subjects, without any interval of regular progress.

The onus probandi in this dispute, fairly lies upon those who contend for the contagiousness of yellow fever. But on the whole, I cannot help believing that they have failed in the attempt to establish their doctrine. As to the yellow fever of Charleston, the question is already settled, if negative testimony be allowed any weight in the decision. Hundreds of instances can be produced, in which persons liable to the disorder, and exposed in the greatest degree to the contagion, have escaped.

It has, I think, been established beyond controversy, by Dr. Pym, that the same person is not susceptible to more than a single attack of yellow fever. After diligent inquiry, I have not heard of an instance, in the practice of any physician with whom I am acquainted, of its second recurrence. In this respect it certainly shows a similarity to some diseases confessedly contagious. But arguments from analogy are so apt to be fallacious, that unless weightily supported, they are never to be depended on. The kind of change wrought in the system by those diseases, which is so powerful and so permanent as forever to prevent their repetition, we do not at all understand. Far less do we understand how the going through the stages of one malady, shall destroy in the constitution all aptitude to be affected by another and distinct affection, as in the instances of vaccine and small-pox. We know too that many diseases, indubitably and in the highest degree contagious, may be taken an indefinite number of times, as syphilis, psora, &c.

While so completely in ignorance as to all these circumstances, we surely have no right to conclude from slight analogy, that yellow fever is of a contagious nature because it is a specific disease, and attacks the constitution but once.

ART. VI. *Report of the Committee of the Academy of Medicine of Philadelphia, on the means by which Absorption is effected.*

THE Committee of the Academy of Medicine of Philadelphia, appointed to investigate, by experiment, the question, "Whether the veins absorb, and whether positive evidence can be obtained that the lymphatics perform that function, or that the lacteals absorb any thing but chyle"—

Report—That they have spent considerable time upon the inquiry entrusted to their charge, and have performed a

considerable number of experiments relating to this subject, but intending to prosecute it further, had not distributed their attention in due proportion to all the parts of which it is composed, when unavoidable engagements, on the part of all the members, and the sickness of one of them, rendered it impossible, at the present time, to proceed. Not being able to promise themselves a speedy renewal of their undertaking, or to assign, at present, the precise time when they can renew it at all, they have concluded to make a report, embracing the subject in its present unfinished state.

Some points, we trust, not without importance, will be found fully established, according to the ordinary operations of human reason ;—others will want further confirmation and elucidation, and some have been only broached.

In our experiments, in which we employed forty-three animals, we used much precaution to insure their accuracy. The whole of the Committee were present at the greater part of them, and all the important ones were so frequently repeated with similar results, that the members occasionally absent had opportunities of making up for loss. Several scientific gentlemen, among whom we may name Dr. Chapman, Dr. Brown, of the Transylvania University, Dr. Troost, and W. Keating, favoured us occasionally with their presence and assistance. We are particularly under obligations to Dr. Troost and W. Keating, for their very polite and prolonged assistance in our chemical examinations of the fluids.

It has sometimes been made an objection to physiological experiments, perhaps in too general terms, that so great violence is done to the system, that it must materially affect the results ; and that phenomena arising from this source, may be mistaken for those, owing to the simple presence of the articles employed, and compatible with a state of life and health. Of the importance of this observation, and the necessity of guarding against such errors, we trust we have been fully aware ; and it will be seen that this reflection has given rise to operations conducted for the purpose of comparison. But at the same time, we presume that this

truth should not stand as a general objection to all inquiries of the kind, or to those in which the above caution has been held in view.

Other and particular precautions employed, will be mentioned as we proceed; and we have only to add, that we have reported experiments which have appeared fallacious, (noting, however, the fact,) for the sake of candour; in order that we might be sure of not withholding any thing tending to establish doubtful questions.

We commenced with repeating and varying some of the experiments of J. Hunter, on the absorption of coloured fluids by the lacteals. These we performed with different articles, on a goat, a male and a female of the sheep, a dog and two cats, repeating the operation several times upon each individual, and always *without* success. We employed the following articles, viz. indigo mixed with starch, with milk, and with water; milk alone, and infusions of rhu-barb, madder, alkanet, and cochineal, the latter, both simple and rendered purple by the addition of carbonate of potass. Our practice generally was, to select a portion of small or large intestine, secure it by a ligature at both ends, inject at or near the temperature of the animal, and then return the part into the abdomen, or attempt to retain its warmth by artificial means. Where the canal contained much fluid, it was removed, but the small quantity which is naturally found on the mucous membranes, was suffered to remain. In some instances the lining surface was rendered as clean as possible. In all these cases, after a short interval, the lacteals, if originally colourless, continued so, and if filled with white chyle, became colourless and transparent. In this result, we are compelled to differ from the recorded authority of Hunter, and to agree with the observations of Magendie, Flandrin, Tiedeman and Gmelin.

An elective process with regard to colour, is well known to take place in the common healthy operations of digestion; as the alimentary tube is filled with substances of various original colours, and below the duodenum deeply stained

with bile, and notwithstanding this, the chyle is always of the same pure and uniform white.

In his experiments to ascertain this point, Bichat was not more successful than ourselves, or than the abovenamed authors. "J'ai repeté souvent cette experience," says this writer; "le fluide injecté, a été bientôt absorbé, *mais non la matière qui le colorait*; en sorte que cette matiere, plus condensée apres l'absorption, teignoit la surface seuse; les lymphatiques etant transparents, comme a l'ordinaire."—*Anat. Gen. vol. iv. p. 519.*

Mascagni was induced to believe the reverse of our conclusions, from the following observations. 1. The hydropic fluid varies in density and colour in different cavities, and it was always observed, that the neighbouring lymphatics contained a fluid exactly analogous. 2. In two bodies having an effusion of blood in the thorax, this author observed the absorbents of the lungs engorged with blood. 3. In a man who became emphysematous after having been poisoned, these vessels were distended with air.

These cases would appear at first sight sufficiently conclusive; but we believe they can be explained without the implication which he draws from them. It is stated by Mascagni himself, that water can be made to pass from the arterial system into the lymphatics; and that this mode was practised, for the purpose of rendering the latter vessels visible. If, therefore, the exhalents, which, in their natural state, transmit only the most extenuated halitus, are capable of so much dilatation as to allow these grosser fluids to pass through them, what is there to prevent the same deranged operation in those capillaries which connect the visible arteries with the lymphatics? It is also the fact, according to Bichat, that when the serous membranes are inflamed, the subjacent lymphatics may be seen distended, like the arterial capillaries, with red blood.

The strongest instance that we have met with upon this subject, is one furnished by Magendie, (*Precis Elem. vol. iv. p. 193.*) in opposition to his own views. It is that in which the celebrated Dupuytren found the lymphatics of the upper

part of the thigh filled with a fluid resembling pus, in a case where a large abscess existed, in the course of those vessels. To this case Magendie makes no answer, nor are we prepared to do so; as we can hardly consider the secretion of pus, in the same light as a mere exhalation, or suppose so elaborated a fluid to escape in the manner above described.

When differing from a high authority in our statements, it affords additional satisfaction, if we can assign a probable cause for the mistake which we attribute to him. The experiment on which Hunter appears principally to rely, in the doctrine of the absorption of coloured fluids, is that in which he describes indigo as having been visible to him, in the lacteals. We were at one period deceived, ourselves, and thought we had seen the blue colour in these vessels; but we quickly discovered that they were colourless; and that what we saw was only the faint bluishness which transparent substances assume when placed over dark cavities, and was probably reflected from the sky. On holding the mesentery, which we were examining, between our eyes and the light, they were seen to be entirely colourless.

In conducting these experiments, as well as some others, our attention was irresistibly drawn to the entire absence of pain, which the subjects of them enjoyed, while violence of various kinds was done to the intestines. We cut, tied, and pinched them with the greatest freedom, in different parts; not only without extorting cries from the animals, but without discovering the least convulsive twitch or other mark of pain. We are not aware that this has been observed by authors. Bichat* asserts this fact of their outer surface, and ascribes it to serous membranes lining the cavities. The same has also been asserted of the heart and the brain. If this exemption should extend to all those parts supplied by the ganglionic system of nerves, it would form an interesting point of knowledge.

F. Magendie, a savant whose name must frequently occur in the pages of all who treat this difficult subject, has predi-

* *Anat. Gen.* p. 528, vol. iv.

cated much of the force of the reasonings contained in his treatise on physiology, upon the smell of camphor which he states he detected in the blood and *breath* of various animals exposed to the absorption of that substance, when at the same time it was not discoverable in the chyle. Aware of the existence of much difficulty and uncertainty in indications drawn from a sense so little cultivated, and so irreducible to exact mensuration and comparison as that of smell, we were particularly anxious to confirm this part of our inquiries, by removing causes of error, and by frequent repetition. Accordingly we found, in several instances, that a vessel containing blood or other fluids, appeared to smell very evidently of camphor, when by removing it to a distant part of the room, and either changing the air of the vessel, or pouring its contents into another recipient, the odour was entirely removed; thus proving, that it was situated in the air the vessel contained.* With these precautions camphor was inserted in a variety of ways, into the bodies of living animals, and with the following results, which we have arranged in a table, for the convenience of reference at a glance. Our experiments were, from a variety of causes, irregular in their extent; but it is impossible to judge of their effectual weight without embracing the whole.

* We found, however, that living blood possessed the power of concealing the smell of a small quantity of camphor, when mixed with it.

Animals.	Mode of exhibiting camphor.	Lacteal fluid.	Fluid of Thoracic duct.	Blood of gen. circu.	Blood of the portal cir.	Breath.
Ram.	Tincture into intestine tied.	18 min. clear. no smell.			31 min. from mesenteric vein. No smell.	
Kitten.	Idem.		58 min. no smell.	58 min. jugular vein. No smell.	32 min. mesenteric vein. No smell.	
Cat.	Half an ounce of tincture into large intestine, half an ounce into small, with half an ounce of mint water. tied.				75 min. mesenteric vein. No smell.	
Terrier female.	Half an ounce of tincture into stomach, and half an ounce into rectum.		40 min lymph and chyle mixed. No smell.		30 min. inferior mesenteric vein. No smell. Section of the liver. No smell.	
Cat.	Tincture per os et anus.	34 min. clear. No smell.	36 min. lymph and chyle mixed. No smell.		39 min. vena portarum. No smell. 40 min. sections of the liver. No smell.	
Dog.	Solid camphor into the cellular substance of the thigh. Tincture per os et anum, and in abdomen.		Upwards of 56 min. lymph alone. No smell.	46 min. right auricle. No smell. 56. Idem.	Sections of liver, no smell, in upwards of 60 min.	No smell.
Cat.	One ounce tincture into abdomen.		No smell.	23 min. Left pleura, did smell of camphor. Blood of the heart smelled less strongly.		
Young Dog.	Two ounces tincture into abdomen.		45 min. chyle. No smell.	10 min. left jugular, 20 min. right jugular, 40 min. transverse vein of the neck, no smell, Pleura no smell. Brain no smell.		Smell of camphor in 10 min. more strongly in 20 min.

Of the two last animals, the only cases in which any camphor was observed to traverse the system, one became instantly insensible; and died, on opening the pleura and admitting air. The other was bled to death from the above-mentioned veins. The rest of our subjects were killed at

different periods from commencing the experiment. We have placed the examination of serous cavities under the head of the general circulation.

From this table it appears in positive evidence that camphor may and does pass through the system of blood-vessels; but it is impossible to found upon observations like these, any inference relative to the mode in which it enters them.

In two experiments with assafœtida, this substance pervaded the whole system in a short time. A third is supposed to have resulted differently, from not having received and retained a sufficient quantity of the drug. We have not, however, investigated its effects far enough to elucidate our questions by it. We remarked that the smell of assafœtida predominated in the mucous surfaces, and that of alcohol in the serous.

We shall now give another table of experiments, which we performed with the prussiate or ferrocyanate of potass.

<i>Animals.</i>	<i>Mode of application.</i>	<i>Fluid of duct, thoracicus.</i>	<i>Serum of Blood, &c.</i>	<i>Urine.</i>
Cat.	Swallowed one grain and a half of the salt in two ounces of water.		64 min no blue produced in the serum.	"
Cat.	Half a drachm of the salt and three ounces of water into abdomen.	More than 35 min. intensely deep blue.	More than 35 min. deep blue.	
*Cat.	Two and a half ounces solution into abdomen.	More than 35 min. intensely deep blue.	More than 35 min. deep blue.	
*Kitten.	1-3 ounce of solution into abdomen, (and a part into cellular texture.) Thoracic duct tied.	35 min. milky, gave a strong blue.	35 min. jugular vein gave a light blue.	
Cat.	Quantity not ascertained injected into stomach.	45 min. faintly, but certainly blue.	No indication.	Strong blue.
Cat.	Two ounces into abdomen, part expelled. Then sol. of sulphate of iron into jugular vein.	35 min. strong blue.	No indication.	
Half grown cat.	Swallowed an ounce of solution.	30 min. no blue.	20 min. no blue.	Clearly developed blue.

* These two experiments were repeated in the presence of Dr. Brown and Dr. Banks, and the particulars were neglected; but the results were similar.

<i>Animals.</i>	<i>Mode of Application.</i>	<i>Fluid of ductus thoracicus.</i>	<i>Serum of Blood, &c.</i>	<i>Urine.</i>
Cat.	Swallowed near 2 oz. of solution, and all removed from the stomach except about 1 drachm.	35 min. no indication.	35 min. no indication.	35 min. no indication.
Cat.	Swallowed 2 oz. of solution.	45 min. no indication.	45 min. no indication.	45 min. no indication.
Young Cat.	2 1-2 oz. into peritoneum.	not collected.	36 min. blue.	36 min. blue.
Cat.	Swallowed 2 oz. of solution.	145 min. faintly blue.	145 min. not evident.	145 minutes, blue.
Kitten.	2 oz. into abdomen.	More than 10 m. slightly, but distinctly.	More than 10 m. not satisfactorily indicated.	More than 10 min. not discoverable.
Cat.	Swallowed 1 oz. 1 ounce into rectum.	Not collected.	60 min. heart not indicated, mesenteric vein not indicated.	60 min. not indicated.
Cat.	1 ounce secured in rectum.	46 min. distinct greenish blue.	46 min. carotid and jugular green.	46 min. deep blue.
Cat.	1 1-2 oz. into cellular texture of each thigh.	80 min. very strongly indicated.	80 min. slightly, liquor pericardii visibly.	80 min. very strongly indicated.
Kitten.	Placed in a bath of the ferrocyanate.	35 min. no indication.	35 min. no indication.	35 min. no indication.

It is impossible to look over the above table, without being struck with the obvious manner in which they indicate the route by which the chemical substance experimented on, entered the circulation. In nearly every instance in which it was found in the blood, the contents of the thoracic duct, if examined, exhibited it in a much more obvious degree; while the kidneys appear as the faithful guardians of the purity of the vital fluid, ready to remove it on its first appearance, and accumulate it among the urine. At the same time, the singular anomalies in some of the cases, may afford a useful caution in such researches; where we might have been totally deceived, had two or three such been the only trials which we made. The slowness and difficulty with which this salt was absorbed from the stomach, is also remarkable; and the last fact gives another example of the non-existence of absorption, in the healthy skin of the animal.

One trial was made of the absorption of chromate of potass, tested with lead, but without discovering it in the system.

Much stress has been laid upon the celebrated experiments of Magendie, in which he placed a part of a living body in such a situation, as to be connected with the rest of the animated system only by a column of blood, and destroyed life by applying poison to the separated part. Of this very striking operation, we have been compelled to postpone the repetition, from causes assigned above ; but, in the meanwhile, we will venture to state the following difficulties respecting it. Magendie himself states, that he could not produce death in a healthy dog, by directing a column of blood of another dog, supposed to be thus poisoned, into his veins ; an anomaly for which we have heard no explanation. 2. We do not know by what precaution the poison was prevented from entering the veins, directly through the openings made in them by the wounds ; a mode in which Fontana supposes the bites of serpents often to prove fatal. 3. Finally, this experiment has been repeated in this city, by Dr. Somerville, who found, in every instance, that the blood of the separated portion coagulated, and that the circulation was at an end, and of course the experiment was so too.

In two instances, we placed *nux vomica* in the intestines, after securing the *vena portarum* by a ligature around the capsule of Glisson. Death took place sooner than in a comparative experiment, where the same violence was committed, and with strongly characterised tetanus and other symptoms of the poison, which it is hardly necessary to say, were wanting in the comparative cases. With a view to discover the effect of spilling this poison, the intestines of a cat were soaked in it, but with impunity ; notwithstanding the very active absorption which we found to go on in the peritoneal cavity. In another instance, about which, however, there is a shade of doubt, (§52,) death appeared to be accelerated by the presence of decoction of *nux vomica*, in the intestine, while the mesenteric veins were secured.

We consider ourselves as having established the fact, that this article acts upon the nerves of the part, and that ab-

sorption, if it really takes place with this substance at all, is not necessary to its full and complete effect.

The suddenness with which concentrated hydro-cyanic acid destroys life, renders it sufficiently obvious, that it does not act by means of absorption. Nevertheless, we thought proper to make a comparative trial of it, similar to that with *nux vomica*, and with the same result.

In a late number of the *Journal de Physique*, there is a paper by Magendie, in which he records experiments, going to prove, the much denied existence of *infiltration* or *percolation* in the living body. He teaches that ink, muriatic acid, and some other matters, may be made to transfer their sensible properties through various membranes of animals. The large strides which this gentleman takes in his inquiries, render it impossible to use any other method in many parts of physiology, than to follow his footsteps. We have tried ink in several ways, described at length, in the account of our experiments, and with the most careful dissection, but always without finding that it had infiltrated.

The experiment on muriatic acid, which this author mentions, appeared to us liable to a very serious objection. It is well known to surgeons, that a blood-vessel separated, for some length, from all its attachments, commonly loses its vitality, in some part of its extent. Our experimentalist placed the jugular vein of an animal exposed in this manner, in a solution of muriatic acid, and informs us, that he detected the acid taste within the vessel. We repeated this experiment, but taking the precaution to leave one half the circumference of the vein with its natural attachments. We retained the sanguineous contents between two ligatures, and then endeavoured to imitate his operations in other particulars. No acid taste was found on the inner side. The vegetable blue was so stained with blood, as not to answer our purpose.

With regard to odoriferous substances, we found that camphor and mint could be smelled through portions of the intestinal tube, in which the vital functions were still proceeding.

Neither camphor nor assafœtida, in two experiments made with them, could be smelled through the stomach.

We conceive that we have thus established the following facts, in a manner as positive as this kind of evidence admits. 1. That colouring matters are not absorbed by lacteals in the living body. 2. That camphor is absorbed with much irregularity, and in too small quantity to afford proofs of the route of absorption. 3. That assafœtida is more permeating. 4. That prussiate of potass enters by the lacteals and ductus thoracicus. 5. That nux vomica and prussic acid destroy life by their operation on the nerves, and probably in no other way. 6. That the assertion of Magendie, that ink will infiltrate in the living body, is incorrect. 7. That the odours of camphor, assafœtida and mint, infiltrate through the intestines. 8. That the chemical and odoriferous substances just enumerated, are transmitted into the system with much more delay and difficulty from the stomach, than from the intestinal tube, and with still less from the serous cavity of the abdomen.

We mentioned on a former occasion, the reasons why we have not prosecuted some of these inquiries further, and it is not necessary to repeat them. Should circumstances prove favourable, we intend to do so on some future occasion.

It can hardly be necessary, in the present state of science, to defend inquiries of this kind, with the mass of the profession, from the imputation of cruelty. But there are many, whose feelings induce them to wish that torture should never be inflicted upon animals, without being perfectly sure, that the inquiries to which they are sacrificed are likely to be productive of utility; and they distrust these investigations generally, as probably futile, and as wasting toil and suffering upon doctrines already demonstrated. To such we can reply, that it has always been our desire, previously to performing a painful experiment, to decide in our own minds, that the object was worthy of it; and with such a belief, we would not shed puling tears over sufferings that are every day freely produced, for the unnecessary amusements of hunting and fishing.

LIST OF EXPERIMENTS. FIRST COURSE.

Upon Absorption simply.

A. With coloured substances.

§ 1. The abdomen of a healthy goat being opened, about five inches of the small intestine was filled with starch, deeply coloured with indigo, finely mixed. The lacteals were colourless, and apparently empty. After near two hours, no change was visible in them.

§ 2. The lacteals of a full grown cat were found finely distended with a white chyle. An ounce of a strong mixture of indigo and water, was thrown into a portion of small intestine, and secured there by ligatures. The lacteals immediately became colourless, and continued so for an hour and thirty-six minutes.

§ 3. About six inches of the small intestine of a large dog were examined, and the lacteals found colourless. It was then injected partly full of a strongly coloured mixture of milk and indigo, and secured by tying the gut. This precaution was employed, in all those instances in which the contrary is not specified. In one hour and fourteen minutes, one lacteal continued white, and all the rest were transparent. None of them exhibited any shade of colour.

§ 4. In the goat mentioned in § 1, about five inches of the great and an equal portion of the small intestine, were filled with milk; the lacteals being of the same transparency as above described.

These vessels continued, for a considerable time, to present the same appearance, after the animal was killed.

§ 5. A sheep apparently healthy, was opened, and milk introduced into three different portions of intestine. In the upper parts of these, or those nearer the stomach, lacteal vessels containing chyle were seen, intermixed with others which were transparent.

A white fluid was in all instances seen to be contained in a few of the lacteals on the mesentery, and in several of those on the gut, for the space of a few minutes. It generally soon disappeared.

§ 6. In a full grown female cat, a quantity of milk was thrown into a portion of small intestine, of which the lacteals were colourless. They continued colourless.

§ 7. In a large dog, a portion of small intestine, near the stomach, was partly distended with warm milk. The lacteals were white and transparent, mixed. They all soon became clear, and continued so till the termination of the experiment, in fifty-three minutes.

§ 8. In a full grown female cat, the lacteals were found filled with white chyle. An ounce of an infusion of powdered rhubarb was thrown into a portion of the small intestine, together with the powder. The lacteals immediately became transparent, but colourless, and continued so till the end of the experiment, in one hour and forty-five minutes.

§ 9. In a female cat the lacteals were found somewhat distended with white chyle. A quantity of strongly-coloured infusion of rhubarb was thrown into the small intestine, and the part tied and returned into the abdomen. In other instances the portions of intestine on which we operated, were sometimes returned into the cavity of the abdomen, sometimes covered with warm cloths, and sometimes not well protected from the cooling effect of the atmosphere. The experiments were geneally tried at a time when the thermometer ranged 70° to 85°.

The lacteals, in this case, became colourless and almost perfectly transparent. On puncturing them, they emitted abundance of a fluid resembling chyle and water.

§ 10. In a large dog, the lacteals of a portion of small intestine were found white and colourless, mixed. The animal continuing vigorous, strongly-coloured infusion of rhubarb was thrown into the segment of intestine warm. The lacteals continued for some time apparently in the same state, and underwent no change of colour.

Some white vessels were visible in 54 minutes. In this instance, as in many others, the intestine was not emptied of its contents. This was done whenever the part ap-

peared occupied with more fluid than necessarily adheres to it.

We believe that there was a sufficient quantity present in this case, to afford some chyle.

§ 11. In a female cat, the whole of whose lacteals were white and distended, highly-coloured infusion of alkanet and cochineal, to the amount of half an ounce, was thrown into a portion of small intestine. The part was then returned into the abdomen. After a considerable interval, (about an hour) the lacteals were uniformly transparent and colourless, and afforded a clear fluid on puncture.

§ 12. In a large dog, the same employed in § 3, (and who had become faint and weak by previous experiments) a quantity of infusion of cochineal, the colour of which had been rendered more intense, and converted to purple, by the admixture of pearl-ash, was introduced into the small intestine. The animal made efforts to vomit. The lacteals, which in this instance were originally transparent, continued so, and did not assume the slightest colour.

§ 13. In a female cat, whose lacteals were uniformly white, and moderately distended with chyle, strongly-coloured infusion of madder was thrown into the small intestine, and the part returned into the abdomen. After a considerable interval, these vessels were found colourless, and afforded, on puncture, a considerable stream of watery fluid.

§ 14. The last experiment was repeated on a large dog, whose lacteals were colourless. They continued so.

§ 15. The same experiment was repeated on a ram, near his stomach. The lacteals were originally filled with white chyle. In 19 minutes they were equally so. In 56 minutes some were transparent; others, faintly white; but all free from colour.

B. *With Odoriferous Substances.*

The remaining experiments were all comparative; between the lacteals and blood-vessels.

§ 16. A portion of the small intestines of a ram, whose lacteals were generally filled with white chyle, was secured,

and a quantity of alcoholic solution of camphor was thrown in. In 5 minutes many more white lacteals became visible, and all appeared more distended than in the beginning of the experiment. In 9 minutes the intestine was much less distended, much fluid having been removed. In 11 minutes all the lacteals gradually became nearly transparent. In 18 minutes lymph, of watery appearance, was obtained from lacteals, and no smell of camphor was afforded, although all the parts smelled strongly of it. Camphor in considerable quantity remained in the intestine. The parts subjected to this experiment assumed and retained a bright red colour, apparently from the stimulus employed. In 31 minutes from the injection of camphor, blood was obtained from a mesenteric vein, which had no smell of camphor.

§ 17. Tincture of camphor was carefully introduced into the small intestine of a kitten, and secured. In 32 minutes blood, from a large mesenteric vein of the part, had no smell of camphor. In 58 minutes blood from the jugular vein and fluid from the thoracic duct had no smell of camphor.

§ 18. Tincture of camphor, and mint water, to the amount of about half an ounce of each, had been thrown into the small intestines of a cat, in two places, and secured by tying the gut; also tincture of camphor into the great intestine of the same animal. In an hour and a quarter after the commencement of the experiment, the blood of a mesenteric vein had no smell of either article.

§ 19. In a terrier female, half an ounce of tincture of camphor, with as much water, were injected into the stomach. The effects of this article on the nervous system were immediately apparent in a high degree. From 2½ to 3 minutes, the animal was in violent convulsions; then vomited freely, and in 13 minutes was pretty well recovered. Half an ounce of tincture of camphor was then injected per anum, mixed with an ounce of water. She soon discharged a considerable portion of the mixture; but in 4 minutes' time the effects of camphor on her nervous sys-

tem, were very apparent. In $27\frac{1}{2}$ minutes she was killed by a blow on the occiput.

Tincture of camphor was found in the stomach, on opening it, after the conclusion of the experiments. In 30 minutes blood from the inferior mesenteric vein did not smell of camphor. In 40 minutes, lymph and chyle, mixed, from the thoracic duct, did not smell of camphor.

Sections of the liver did not smell of camphor, which would have been conveyed there, if absorbed by the veins.

§ 20. A cat had escaped, and lived three days in a place without food, owing to our not being able to discover her. Her lacteals were, of course, in a state of great exhaustion. Tincture of camphor and water mixed, were injected into the stomach, and within 25 minutes two clysters of the same were given. She was much intoxicated; when in 29 minutes she was killed by a blow on the occiput. In 34 minutes, a pellucid fluid, from a lacteal, did not smell of camphor. In 36 minutes, lymph, with some chyle, from the thoracic duct, did not smell of camphor. In 39 minutes, blood from the vena portarum did not smell of camphor. In 40 minutes, sections of the liver did not afford the smell.

§ 21. Several pieces of camphor were introduced into the lular substance of the thigh of a dog. Tincture of camphor and water were then injected into the abdominal cavity, into the stomach, and into the rectum, the latter being performed twice. In 41 minutes the dog was killed, by a blow on the occiput. In 46 minutes, blood from the right auricle of the heart had no smell of camphor. In 56 minutes large quantities of blood had no such smell.

Lymph from the thoracic duct, and sections of the liver had no smell of camphor. The smell had nearly disappeared in the abdominal cavity, where it had been injected. A very singular phenomenon, indeed, as this smell was not to be found in any part of the fluids or tissues of the animal.

The tincture was greatly diminished in the rectum; as considerably less was found there, than had been retained.

The breath was carefully smelled ; but no camphorated scent discoverable.

In order to ascertain whether our senses were in a proper state for this investigation, we mixed a small quantity of tincture of camphor, with some blood, separately from the animal, and smelled it—no difficulty was found in distinguishing the usual sensations.

§ 22. An ounce of tincture of camphor, diluted with water, was introduced into the abdomen of a cat ; which became instantly insensible.

In twenty-five minutes the left cavity of the pleura exhaled a smell of camphor.

The blood of the heart smelled of the drug, but less strongly.

The fluid of the thoracic duct afforded no camphorated smell.

§ 23. In a dog between two and three months old, about two ounces of strong camphorated spirits were injected into the cavity of the abdomen, and the wound sewed. In five minutes the effect of the drug existed in a high degree, and the animal became insensible. In ten min. the mouth and breath smelled of camphor ; and in 20 min. strongly so. Blood was obtained in 10 min. from the right jugular vein ; in 20 min. from the left jugular ; and in 40 min. from the transverse vein of the neck : but in none of these instances, was the least camphorated or spirituous smell discoverable.

The cavity of the pleura was next opened, and afforded no smell of the substances injected.

In 45 minutes 1-4 of a drachm of chyle was collected, but it afforded no smell.

The ventricles of the brain afforded no camphorated, nor spirituous smell.

The thoracic duct became strongly distended again, after being evacuated in part ; not less than 25 minutes after the death of the animal functions.

§ 24. An ounce of tincture of assafœtida, with an equal quantity of water, was injected into the abdomen of a cat.

The breath smelled very strongly of assafœtida in 3 min. The animal was intoxicated within the same time.

In 10 min. blood was obtained by cutting the animal's throat; and slightly, but distinctly emitted a peculiar smell, which we compared to assafœtida, but which was modified.

The serous cavities smelled of both assafœtida and spirits, but principally of the latter.

The mucous, on the contrary, smelled of both, but principally of the former.

The chyle in the thoracic duct emitted the same peculiar smell with the blood. The muscles gave no smell of the drug. The urine a powerful one.

§ 25. A small dog was compelled to swallow half an ounce of tincture of assafœtida, diluted with water.

The animal soon became evidently affected by the drug. Blood was obtained from a vein of the stomach, in little more than 32 minutes, and had no smell of assafœtida.

The cavities of the pleura and pericardium were found devoid of the fœtid smell.

In 56 min. chyle and lymph from the thoracic duct did not smell of the drug.

Blood from the carotid artery did not afford the smell, in 50 minutes.

The breath, here, of course, was imbued with the odour in the mouth and œsophagus. It is proper to remark, that this animal vomited at 28 min. but that much of the article used, was found in his stomach after death.

§ 26. An ounce of tincture of assafœtida was thrown into the rectum of a large cat, mixed with an ounce of strong solution of prussiate of potass. The rectum was then secured with a ligature.

In four minutes the smell of alcohol was perceived in the breath, and in 23 minutes, a smell of assafœtida had gradually followed.

In 33 minutes, blood from the carotid artery and jugular vein, mixed, smelled of assafœtida and alcohol.

In 44 minutes the abdominal cavity smelled distinctly of both these articles.

In 46 minutes the urine did not smell of them. The phenomena afforded by the presence of prussiate of potass fall under another head.

C. With Chemical Substances.

§ 27. A cat was compelled to swallow 1 1-2 grains of prussiate or ferro-cyanate of potass, dissolved in two ounces of water; a solution, of which half a drop, mixed with two fresh ounces of water, struck a deep blue, on the addition of sulphate of iron.

The animal was killed in 27 minutes, by a blow on the occiput.

Blood was obtained from the heart, and tested with sulphate of iron. No appearance of the prussiate was discoverable in 64 min.

An infusion of sections of the kidneys, was tested in the same manner, but without discovering the prussiate.

No fluids could, in this instance, be obtained from the thoracic duct or from the bladder.

§ 28. A large healthy cat was procured; the abdomen opened and three ounces of solution of prussiate of potass, containing half a drachm of the salt, were injected and secured.

In 35 minutes, it was killed by a blow on the occiput, and blood procured from the jugular vein and heart, as soon as possible after securing the thoracic duct. The ligature included the transverse vein of the neck.

The serum of the blood from the heart, afforded a light blue, when tested with sulphate of iron and water.

That from the jugular vein was tested in the same way, when "if it changed to blue, it was scarcely evident."

Half a drachm of the semi-transparent contents of the thoracic duct, was mixed with a drachm of water; when one drop of a solution of sulphate of iron, being added to it, afforded a beautiful blue colour.

After an interval, these experiments were repeated with-

out the addition of water, and while the chyle, freshly obtained for the purpose, was still fluid.

The colour obtained both from the contents of the jugular vein and heart, was deep, and from the chyle, intensely so.

§ 29. A large healthy cat was opened, and two ounces and a half of the solution of prussiate of potass, injected into the abdomen. The serum of the blood and the chyle, afforded results exactly similar to those in the last experiment. The fluids were arrested in their vessels, for the purpose of being extracted, at 35 minutes.

§ 30. The same experiment was repeated on a half grown kitten, after previously tying the ductus thoracicus. An ounce and a half of solution was injected. But here it is proper to state, that a considerable quantity of the solution was effused into the cellular structure of the abdominal integuments.

The kitten was killed in thirty-five minutes, and blood obtained from the jugular vein. This afforded a light blue, on application of the test.

The milky fluid from the thoracic duct, afforded a strong blue.

The urine afforded a light blue.

§ 31. In order to satisfy ourselves that these phenomena arose from the presence of the extraneous body in the vessels, serum of blood, and lymph and chyle from the thoracic duct, were produced under similar circumstances from a cat, and tested with the sulphat of iron. No change however was produced; thus evincing that the test was not fallacious.

§ 32. An ounce of solution of sulphat of iron was injected into the peritoneum of a kitten. No indication of this substance was afforded, in 32 minutes, by the test of prussiate of potass, applied to the serum.

This was repeated by one of our number with the effect of producing a greenish tinge approaching to blue, probably resulting from the colour of the sulphate itself; which, how-

ever, soon subsided into a thick mucous sediment, leaving the supernatant fluid clear.

§ 33. The experiments described in §29 and §30, were repeated with results so precisely similar, that it was not thought necessary to describe them more minutely.

§ 34. A quantity not precisely determined of solution of prussiate of potass, was injected into the stomach of a large cat by the mouth. In 45 minutes, the test faintly, but certainly indicated the presence of the prussiate, in the chylous fluid of the ductus thoracicus. The urine indicated it strongly, but the clear serum of the blood gave no appearance of it at all. It is right to mention, that in this instance, the œsophagus being cut, it is within the bounds of possibility that a small particle of dissolved prussiate may have thus found its way into the vessel that collected the chyle, although we believe it was not so.

The stomach was found perfectly empty.

§ 35. Two ounces of solution of prussiate of potass, were injected into the abdomen of a cat; and in about 25 minutes afterwards, about one drachm of the solution of sulphate of iron was thrown into the right jugular vein. In two or three minutes, the animal was convulsed violently, and part of the solution expelled from the abdomen.

In 35 minutes from the first injection, the ferro-cyanate was detected in the contents of the thoracic duct.

The serum of the blood was transparent, and did not indicate the ferro-cyanate.

§ 36. A half grown cat was made to swallow an ounce of the solution of prussian alkali.

In 20 minutes, she was bled to death, and the prussiate clearly indicated in the urine, but not in the least visible degree in either the chyle or the serum of the blood.

§ 37. A large male cat was forced to swallow near two ounces of solution of prussiate of potass.

In 35 minutes, urine, serum of blood, and fluid from the thoracic duct, were collected; neither of which indicated the presence of the salt in question, in the slightest degree. Notwithstanding this, a great portion of the solution had

been removed from the stomach, by animal processes, as not more than a drachm remained in that viscus after death.

§ 38. Another large cat was made to swallow two ounces of the prussic solution ; and in 45 minutes, the fluids were tested, in the usual manner, but without discovering any absorption of this chemical agent.

§ 39. Two ounces and a half of the solution were injected into the peritoneal cavity of a young cat. In 36 minutes it was detected in the urine, and in the serum of the blood. No chyle was collected.

§ 40. A middle sized cat was forced to swallow about two ounces of prussiate of potass. She first became very sick, then recovered, after having a fluid stool, and afterwards slept ; but still was unable to walk steadily. In two hours, twenty-five minutes, she was killed.

The urine indicated the salt. The chyle did so, but faintly. It was not evident to satisfaction, in the serum of the blood.

§ 41. Two ounces of the prussiate solution were injected into the abdomen of a kitten ; which was killed in *ten* minutes, and the fluids collected as soon as possible. On applying the test, the urine did not contain a discoverable quantity of the prussian alkali, and the serum of the blood, not so as to be evident in a satisfactory manner ; while the fluid of the thoracic duct exhibited it slightly, but distinctly.

§ 42. A small cat was made to swallow an ounce of the solution, and ten minutes after, another ounce was thrown into the rectum. In an hour, the cat was killed. No sign of the prussiate was found in the serum of blood, from either the heart or the mesenteric vein, or, in the urine. The chyle was lost.

§ 43. A large cat mentioned in article 26th, was compelled to retain an ounce of the prussiate solution, mixed with an ounce of the tincture of assafœtida ; by means of a ligature on the anus.

In 33 minutes, the animal was killed, and the fluids prepared for examination within 13 minutes after.

Prussiated potass was found in the urine, forming deep blue, with sulphate of iron, acidulated with nitric and muriatic acids.

Chylous fluid from the thoracic duct, afforded a distinct greenish blue, with sulphat of iron and nitric acid.

Serum of blood, both arterial and venous, from the neck, separately, afforded a green, with sulphate of iron and nitric acid.

To discover how much of the colour in the serum was owing to iron, which the muriatic acid contained, this fluid was tried, first with nitric acid, which gave a white albuminous precipitate; secondly, with muriatic acid in addition, which gave a slight green, when, thirdly, sulphate of iron was added, which gave a more intense green, tending to blue.

§ 44. An ounce and one half of solution of the prussiate was injected, with much pains, into each thigh of a large cat, and the wound stitched. At one hour and twenty minutes afterwards he was killed.

The urine and chyle very strongly indicated the presence of the salt. The serum of the blood exhibited it slightly.

It was discovered in the liquor pericardii.

§ 45. A small kitten was placed in a bath composed of the prussian solution abovementioned; and after 35 minutes, it was removed and killed. No indication of the salt could be obtained, though examined in the usual manner.

§ 46. Two ounces of a solution of *chromate of potass* were injected into the peritoneal cavity of a large cat.

In 35 minutes she was killed, and the fluids tested as soon as compatible with accuracy, by means of the subacetate of lead. In neither urine, fluid of the thoracic duct, nor serum of the blood, was the chromate detected.

D. With Poisonous Substances.

§ 47. In a kitten two months old, the capsule of Glisson was included within a tight ligature, so as to put an end to all circulation in the blood-vessels which traversed it.

Two-thirds of an ounce of *nux vomica* had been infused in 8 ounces of boiling water, and with this several inches of small intestine were distended.

The animal soon began quick respirations, with protrusions of the tongue, which continued nearly till her death.

In 14 minutes violent spasms took place.

In 17 more, violent spasms, distinctly tetanic, with opisthotonos.

In 23 minutes the animal expired, after repeated tetanic spasms.

§ 50. A kitten about 1 month old, was opened, and the capsule of Glisson tied in the same manner as in the last experiment, in order to ascertain how far this violence affected the results above described.

More frequent breathing took place, together with protrusion of the tongue. In 17 minutes appeared to breathe tolerably. In 22 minutes—has been for some time dying, with slow respiration, progressively declining. In 30 minutes ceased to struggle.

No tetanic symptoms, and no spasms whatever, were observed in this animal. The heart, which was first examined in this case, continued to palpitate for nearly an hour after death, and was easily excited again to action, after it had ceased, by puncturing it with a needle.

§ 51. A full grown terrier-female, that had had young, and appeared to be in good health, was procured. The lacteals were distended with chyle.

The capsule of Glisson was tied, with all its contents, and an ounce of the abovementioned infusion of *nux vomica* injected into the small intestine and secured.

The animal died in 28 minutes, with the pupils of the eyes dilated, the corners glassy, and with well characterized tetanus.

§ 52. As a few drops of the decoction were spilled, in both instances, and came in contact with the peritoneum; we made the following trial of the effect of this substance on that membrane. The intestines of a cat, weakened by several preceding experiments, were wet, on their perito-

neal coat, with the infusion abovementioned. No effect was produced in 17 minutes. The animal lived a longer time than could have been expected from the violence done her, and died without tetanus or other symptoms of the poison.

§ 53. A cat on which several of the abovementioned experiments with coloured substances had been tried, still retained considerable vigour; when the mesenteric veins of a portion of intestine, 4 or 5 inches long, were secured, and the gut distended with the decoction of *nux vomica*. Death ensued in 11 minutes; although the animal had borne other experiments for an hour and 12 minutes. We are, however, not prepared to say, that this experiment was entirely satisfactory, as its results depended on circumstances which could only be estimated by our judgment, and could not be brought under the test of precise mensuration.

§ 54. A portion of small intestine, about 2 inches in length, in a kitten, was separated from the remainder, by cutting it off; the arteries and veins, where visible, were then secured, including a small vessel which appeared in about 2 minutes after the commencement of the experiment. Half an ounce of tincture of *nux vomica* was then injected.

In 17 minutes no effect was produced.

This experiment, although mentioned here, for the sake of candour, was far from being circumstanced so as to produce reliance upon deductions drawn from it; as several lacteals, and most, if not all of the nerves, were evidently included within our ligatures, and the part was, very probably, early deprived of vitality.

Not having it in our power to obtain either of the species of upas, we thought it proper to make some trials with prussic acid, although we acknowledge that, to our minds, the supposition appears absurd, that an agent whose effect is sometimes so instantaneous, could require for its operation the circuitous route of absorption.

The prussic acid which we employed, was the alcoholic solution recommended by Dr. Thomas Cooper, much weakened, and was tried in the following manner. One drop

was placed first on the eye, and then on the tongue of a young kitten, with impunity. Half a tea-spoonful was then injected into the stomach; and death, with the usual symptoms, followed, in one minute. As the acid had been kept for some time previously to this trial, and was carefully put away, and used within three days, it is presumed no very great alteration in its strength took place.

§ 55. The thoracic duct and vena portarum of a kitten, two months old, were tied. The lacteals were white, and very conspicuous. About one fourth of a drachm of the prussic solution was introduced into the small intestine, and the orifice tied. The kitten died in seven minutes, with screaming and struggles, but with no tetanic symptoms. In 24 min. the heart was examined, and found perfectly motionless and not susceptible of excitement by puncturing. On opening the intestine operated on, the mucus which had come in contact with the poison, was stained reddish brown. The first inch of the bowel was opaque and deprived of its peristaltic motion, although the rest manifested it in a high degree.

§ 56. The vena portarum of a half grown kitten was tied, and nearly a drachm of alcoholic solution of prussic acid was injected into the small intestine and secured by a ligature above and below. This experiment is inserted for the sake of candour, although we consider the prussic acid much weakened. The lacteals which were completely distended with chyle, became empty as if paralyzed.

In 14 minutes a rigid spasm was observed. In 15 1-4 min. the animal, which had been lying quiet, with the last-mentioned exception, and apparently gradually losing strength, expired.

SECOND COURSE OF EXPERIMENTS

On the question, whether infiltration can take place through living tissues, in direction transverse to their texture.

A. *With Coloured and Chemical Substances.*

§ 57. Ink was confined upon two parts of the mesentery of a living cat. After a considerable interval, the opposite

side of this membrane was examined with care, and no mark of infiltration was found.

§ 58. More than a drachm of ink, was poured into the right pleura of a living female cat, and suffered to remain there nine minutes including seven of apparent death, but during which, the organic life must have continued in the part.

The membrane was then carefully dissected from considerable surfaces, both of the lungs and the thoracic parietes; but no coloured infiltration was discovered.

§ 59. Two ounces of ink were injected into the peritoneum of a cat. In 35 min. the animal was discovered to be dead. After previously examining another part, the urine was obtained and the bladder examined.

The bladder, whose outer surface was entirely black, from having had nearly the whole of the ink in contact with it, owing to the position of the animal, did not show the least mark of infiltration on its inner surface; nor did the urine either evince its admixture, or the presence of iron alone, as exhibited by the addition of ferro-cyanate of potass. No other part was in this instance examined for infiltration.

§ 60. An inch and a half of the right internal jugular vein of a ram, were uncovered on the side which lay uppermost, and for one half of its circumference; leaving, however, the natural attachments of the remaining half of the vein, in order to avoid risking the destruction of the vitality of the part. Muriatic acid, mixed with water in the proportion of two drachms to eight ounces, was kept constantly applied to the part. In a few minutes the part exposed became quite black, and in ten minutes the whole section of vein, included, as it had been from the beginning of the experiment, between two ligatures, was removed and washed. The cavity was then exposed, and the blood and inner surface of the vein applied to our tongues, without the perception of any acid taste.

B. With Odoriferous Substances.

§ 61. A ligature was made round the small intestine of a kitten, near the stomach, and tincture of camphor introdu-

ced. The orifice was then tied, and all the parts which had been in contact with the injecting instrument carefully cut off, so that not the least smell of the drug was any longer perceived. In one minute a smell was perceived, but we could not distinctly characterize it as that of camphor.

In 14 minutes, camphor was distinctly smelled from the outside of the intestine.

In 58 minutes this smell was stronger. The circulation had gone on for all this time, and clear lymph had continued to traverse the lacteals.

§ 62. A small vial of tincture of camphor, corked, and externally totally devoid of smell, was introduced into the large intestine of a cat. The gut was then carefully tied, and the cork pressed out of the neck of the vial, without disturbing the ligature.

In 15 minutes no smell was perceived, but after some time, that of camphor was very obvious.

§ 63. Tincture of camphor was then introduced into the small intestine of the same cat, and secured between two ligatures; no vial being obtained sufficiently small to enter this part.

The intestine had at first a faint smell of camphor, which disappeared in three minutes. In three quarters of an hour, a slight smell of this drug was discovered, and in one hour and twenty minutes, it became quite distinct and evident; the part during all this time retaining its life and vital actions.

§ 64. A terrier female had half an ounce of tincture of camphor, mixed with as much water, injected into the stomach.

In twenty-seven and a half minutes she was killed, and other observations having been made on her, which occupied the time as far as 42 minutes, the stomach was examined. It did not smell of camphor, although this substance was immediately afterwards found in the cavity.

§ 65. Mint water was thrown into the small intestine of the cat employed in the last mentioned experiment but one, and secured so that no smell was perceptible..

In about 15 minutes the smell of mint was perceived, and in 44 minutes it was very apparent, although the actions of the part continued during the interval.

§ 66. A small dog was compelled to swallow half an ounce of tincture of assafœtida.

In 28 minutes the animal vomited, being at the same time much under the influence of the drug. No smell could be perceived on the outside of the stomach.

In 50 minutes, the carotid artery was divided.

In 77 minutes the smell could not be perceived on the outer surface of the stomach.

In 4 hours, 20 minutes, it was very indistinct, although the stomach was separated from the body, and partially dried. On opening this viscus, however, the smell was very strong.

The above is a correct account of the experiments, carefully compared with the journal of the Committee, from which it was compiled.

RICHARD HARLAN,
J. B. LAWRENCE,
B. H. COATES.

ART. VII. *Thoughts on Sympathy, in a Letter from CHARLES CALDWELL, M. D. to N. CHAPMAN, M. D.*

Transylvania University, December 15, 1821.

MY DEAR SIR,

On the great and interesting doctrines of *sympathy*, as opposed to those of *humoralism* (if it be permitted me to coin a word for the occasion) in the three departments of physiology, pathology, and therapeutics, you and myself have, within the last twenty years, held very many pleasant, and, to me, instructive conversations and discussions. Remote from each other as are the situations in which our desti-

nies have ultimately placed us, an intercourse on the same subject, by the aid of letters, is still within our reach. Without pretending, then, to disclose a single view that shall to you be marked with novelty, either in matter or arrangement, suffer me to invite you to a simple retrospect of grounds we have so repeatedly traversed together. This trouble I venture to give you with the less ceremony, in consideration of the efforts which appear to be on foot, in various quarters, to re-inundate the medical world with the foul tide of humoral doctrines.

Although not, perhaps, justified in saying that, in behalf of the sympathetic school, *we* have maintained the conflict entirely alone, it is certainly true, that, as teachers and disputants, we have, for many years, held our stations in the front rank of battle. Nor, while supported by an ally so able in council, and so dextrous in combat, as you are, does any apparent augmentation of the forces of our opponents awaken in me the slightest apprehension or concern. However few in numbers they may originally be, the advocates of truth, and the faithful interpreters of nature, cannot fail, in the end, to triumph over legions entangled in error. For a time, indeed, the struggle may seem desperate and the issue doubtful. The "million" may even exult in the anticipation of a certain, an easy, and a speedy victory. Like the small but invincible band of Byron's Conrad, the advocates of sound principles may be considered

"Hemm'd in—cut off—cleft down—and trampled o'er."

But the fancy is illusive, and the hope a bubble. Let them be true to their cause and to themselves—let their resolution be manly, and their perseverance inflexible—let them, in the language of the same illustrious favourite of the Muses,

"— each strike singly, silently, and home;"

and, instead of falling themselves, in the deadly conflict, it will be their antagonists that must

"— sink outwearied rather than o'ercome."

In my lectures and teachings on the subject, it is my

custom to consider the human sympathies under the four following divisions, viz:

1. Mental sympathies—i. e. sympathies of mind with mind. 2. Corporeal sympathies—i. e. sympathies of one part of the body with the other. 3. Sympathies of the body with the mind. 4. Sympathies of the mind with the body.

Under each of these fall certain sub-divisions, which I know to be so familiar to you, that to encumber you with an account of them would be altogether superfluous.

If my views of the vital and intellectual economy of man be not utterly unfounded, through the medium of one or the other of these channels, or of two or more of them combined, may every movement, action, and process appertaining to him, whether healthy or diseased, mental, corporeal, or mixed, be satisfactorily explained: while, without them, he is a riddle which no one can read. Accompany me, I pray you, with your indulgence, in an attempt to apply them to the explication of a few interesting and important phenomena of mind and body.

As a preliminary to this attempt, permit me to observe, that every agent capable of throwing its influence throughout the human system, must do this either through the medium of the fluids, by way of *admixture* with them (the notion of *vibration* being obsolete and discarded) or through that of the solids, by means of sympathy. So clear and unexceptionable is this position, that I think it may be regarded in the light of an axiom. I, at least, remember at present no exception to it.

To preserve something like regularity in the tenor of my remarks, I shall speak of the sympathies of man, in the same order of division in which I have announced them.

To mental sympathy are the military leader, the orator, the poet, the musician, and the dramatist, indebted for the all-prevailing influence they possess.

In the day of battle, the chief, at the head of his column, advances, with a generous gallantry, to the breach, the escalade, or the cannon's mouth, and his followers, inspired by his intrepidity, fearlessly tread in his footsteps: or he

falls back affrighted, and, participating in his terror, they fly in disorder.

Speaking figuratively we say, in the first instance, that the soldiers had infused into them the courage of their commander, and, in the last, that they were infected by the contagion of his fears. But in neither case do we admit that any thing has actually passed from their officer into their blood, and through that channel found its way to their heart. A sentiment so grossly erroneous could not be tolerated. Our only meaning is, that their souls have so far sympathized with that of their leader, as to impel them instinctively to follow his example.

The orator fires or melts with his own feelings, controls at his pleasure, and converts to his purposes, a deliberative body, or an assembled people.

Here, again, nothing passes from the speaker to the hearers, but the contagion of the soul. By no one has it ever been alleged, that the blood of the latter receives any admixture from the eloquence of the former, notwithstanding the tumultuary commotion into which it is thrown. The words of the orator strike the ear, and electrify the heart; but have no affinity for the grossness of the humours. In mental sympathy is the true philosophy of the phenomenon to be found. On that foundation, then, was erected the influence, and rests the fame of Demosthenes, and Cicero, and Chatham, and Henry, and all other orators, whether ancient or modern, who have at once astonished and ruled their cotemporaries.

To the transcendant influence of poets and musicians am I authorized in the application of similar remarks. It is in the magical web of mental sympathy, that Homer and Dante, and Milton and Byron, entangle so indissolubly the souls of their readers, and drag them in triumph at the chariot-wheels of their genius. And it was by the same inexplicable tie that the "mighty musician," having maddened the spirit of the conqueror of the world, hurried him along to the conflagration of Persepolis.

But by no character is this mysterious influence handled

with a sway more truly stupendous, than by the able and accomplished dramatical performer. Wielded by him its witchery is irresistible. At his thrilling and versatile touch, it overwhelms in tears, inflames with rage, transports with joy, or convulses with laughter, admiring thousands. It even spreads, at times, around soul and sense, such a transfiguring illusion, that, to fancy and feeling, actors and actresses become true heroes and heroines, and fiction assumes the mask of reality. And all this is effected, not by any primary agency on the fluids, but entirely through the medium of the intellect and the solids—through the instrumentality of that all-moving principle, the sympathy of minds.

On the same ground alone can we explain the contagious nature of joy, sorrow, anger, love, hatred, hope, and all the other passions and emotions of the mind. The sentiment expressed in the well known maxim in oratory, "*Si vis me flere, dolendum est primum tibi ipsi,*" may be applied with equal propriety to the communicability of every feeling and affection of the soul.

It is in mental sympathy that we must search for the true source of that propensity which we feel to imitate the manners, looks, modes of thinking, and general deportment of those with whom we associate, and which constitutes such a powerful spring of human action. On this sympathy depends essentially the *influence of example*, which moulds us, modifies and makes us what we are. It is, therefore, a great pervading and efficient principle, in the effectuating of our education; not merely our scholastic and academical education; but the entire mass of our attainment and improvement of every description, from the commencement to the close of life. In the formation of the moral and intellectual man, then, mental sympathy is powerfully operative.

Nor is it much less so in the production of certain diseases. Hysteria, epilepsy, and chorea sancti viti are communicable complaints. In proof of this, were proof required, very many indubitable facts might be adduced. The cause of it is to be sought for in mental sympathy.

I need scarcely repeat, that the humours of the body have not the slightest concern in giving rise to any of the foregoing phenomena. In this the most arrant and incorrigible humouralist will not contradict me. As well might he say that thought itself is of humoural origin.

Corporeal sympathies are so numerous, and crowd on us so abundantly from every quarter, presenting each a fair and rightful claim to our attention, that we experience no ordinary difficulty in determining at what point we should begin to recount them.

The four organs that seem to exercise over the other parts of the body, the most extensive and powerful sympathetic control, are the stomach, the skin, the brain, and the genitals. To a few of the sympathies originating in these, permit me briefly to solicit your attention.

A severe blow on the region of the stomach, instantaneously kills. So does a copious draught of very cold water taken in warm weather, when the system is exhausted by recent fatigue. The same thing is true of an excessive amount of ardent spirits very hastily swallowed. As the result of drinking, at a single draught, for a wager, three pints of pure gin, I once saw a sailor fall and expire in less than three minutes. A violent spasmodic affection of the stomach, induced by any morbid irritation, suddenly annihilates, by sympathy, the muscular strength, and, in other respects, very powerfully affects the system. Cutaneous eruptions often follow it. The general and extreme debility which the irritation of tartarized antimony on the stomach produces, is known to every one. When that organ is surcharged with food and seriously occupied in the work of digestion, the whole system is affected with languor and inaction. Many poisons taken into the stomach, destroy life long before they can possibly make their way into the circulating fluids. Certain articles of this description have even been taken from the stomach, *after death, undiminished in quantity.*

St. Vitus's dance, epilepsy, and mania, have been oftentimes produced by irritation from worms in the stomach and

bowels, and have suddenly disappeared, on the removal, by a puke or a purge, of the offending cause. An affection strongly resembling mania, has frequently arisen from the impression of the unbroken seeds of *datura stramonium* on the stomach, when *not the slightest change had been effected in them by that organ*. In these cases, the seeds *retain their natural appearance*, and their expulsion by puking or purging is followed by an immediate cessation of the disease. Had the offending portion of them made its way into the fluids, this could *not* be the case. Merely to cleanse the *primæ viæ*, cannot immediately remove morbid matter from the blood.

Intoxication from wine or ardent spirits, arises exclusively from gastric irritation, and is, therefore, the result of gastric sympathy. As far as I am informed on the subject, the grossest humoralist has never alleged that the intoxicating liquid makes its way, *in propria forma*, into the blood. An error so glaring could not be tolerated even by the eye of sectarian blindness.

A diseased state of the stomach produces violent ophthalmia and dimness of vision; complaints which can be readily removed only by medicines skilfully directed to the organ originally affected.

I once saw a case of perfect but temporary blindness, suddenly induced by a spasmodic affection of the alimentary canal. The complaint was speedily cured by the action of remedies on the part that had been primarily diseased.

In none of the foregoing instances will any one contend, that the system suffers through the medium of the fluids. The operation is palpably the offspring of sympathy, in which the solids alone are concerned. So much for agents that *injure* the stomach.

In proof of the *salutary* sympathies of this organ, the evidence is no less abundant and strong.

To a system sinking under fatigue and hunger, vigour and activity are suddenly restored by the swallowing of a glass of wine, or a few mouthfuls of savoury food. This renovation of strength does not arise from any augmentation of

the circulating fluids of the body. It takes place long before such augmentation can be effected. It is at times instantaneous.

A dish or two of strong coffee, a draught of camomile tea, or a moderate dose of laudanum, will immediately relieve a violent head-ache. So will a dose of tartarized antimony, ipecacuanha, or any other efficient emetic.

Emetics have frequently effected a speedy cure in cases of inguinal bubo, swelled testicle, local hydropic effusions, and rheumatic affections of the upper and lower extremities.

A draught of cold water has often suddenly relieved, and sometimes immediately checked troublesome hemorrhages from different parts of the body.

Arsenic, spider's web, Peruvian bark, and other permanently stimulating remedies, act directly on the stomach only, in the removal of intermitting fever. On the system at large they operate exclusively through the medium of sympathy. Indeed the same thing is true of all other *remedies*, properly so denominated, that are administered *per os*; a fact which, by a fair analysis of the subject, can be conclusively established. Correctly speaking, nothing is entitled to the name of a remedy, except such articles as the stomach is unable to subdue and assimilate. Those that are susceptible of digestion by the stomach and duodenum, and absorption by the lacteals, assume the character, and act the part of *common chyle*, and *nothing more*.

They belong not to the *materia medica*, but the *materia alimentaria*.

The sympathies radicated in the skin, and extending thence throughout the system, are, at once, numerous and powerful, important and striking.

It is that organ which receives, and conveys by sympathy to the other parts of the system, the original impressions of all vicissitudes in the sensible qualities of the atmosphere, one of the most fertile and formidable sources of disease.

To be more particular and analytical.

The atmosphere changes suddenly from a high to a low temperature. By this, the whole *interior* of the body is un-

affected, the *exterior* alone being sensible of the change. The *blood*, in particular, retains its temperature: for *it* is known to be as warm when the mercury stands at zero, as when it indicates summer heat. On the *skin* alone, then, is the original impression made, and the other parts that suffer are affected by sympathy. Through the medium of the *blood* they cannot be injured. Cold is not a subtle modification of matter, capable of penetrating the skin and vascular system, and mingling with and adulterating that fluid. It is to be regarded as an absence or negation of matter. Yet febrile and other forms of disease are the usual result of its action on the skin.

The philosophy of the case, then, is plain and simple. A sudden change in the temperature of the atmosphere from heat to cold produces on the skin a morbid irritation, but infuses nothing deleterious into the blood. This irritation constitutes the first link in the chain of diseased action which extends by sympathy from solid to solid—from one organ or set of organs to another, until the whole system feels the derangement. Rationally to explain the phenomenon in any other way, I, without hesitation, pronounce impossible. To speak of an original contamination of the fluids in such a case, would be an idle and unmeaning effusion of words. The fluids remain sound until affected by the morbid action of the solids.

Shall I be told by a humouralist that all the mischief of which I have been speaking arises solely from a "*suppression of perspiration?*"—Granted, if you please, *for the sake of argument*, but not as an offering at the shrine of truth.

Is not the matter of perspiration a secreted fluid, the result of the glandular action of the skin? And does not the suppression of this secretion plainly and necessarily presuppose a diseased condition of the secreting organ? Undeniably it does. The fluid of perspiration is not an effete poisonous mass separated from the blood by chemical agency, in the course of circulation, and percolating through the skin, like water through a sieve. It is a fluid secreted by the skin, flowing freely and healthily when that organ is

sound, but defectively or superabundantly and vitiated in quality, when it becomes diseased.

Even on the principles of the humoral system, then, the solids of the body suffer first.

Will it, in reply to this, be alleged, that the retention of the perspirable matter contaminates the blood, and that this contamination is the real cause of the disease that ensues? I answer in substance as before, that this very retention is nothing but the effect of a pre-existing disease. I might safely add, that the term "retention," as here applied, is without a meaning. Properly speaking, nothing can be *retained* which does not exist; and I beg leave to repeat, that the perspirable fluid is formed only by that action of the skin which is now suspended. It still floats, therefore, *substantially*, but not *formally*, in the blood. Besides, the alleged contamination of the blood has never been proved to have an existence, except in the imagination of its mistaken advocates. At all events, the solids suffer first, and the fluids, if at all, only secondarily, in consequence of the morbid action of the solids.

Perhaps my inflexible and persevering antagonist may inform me, that he does not consider a contamination of the blood, but a general *plethora*, as the effect of suppressed perspiration; and that from this state of things arises the disease.

Were this the case the treatment would be simple. The mere removal of plethora being the only indication, the felicitous days of Sangrado would return—and bleeding and hot water would complete the cure.

But unfortunately for physicians, and more unfortunately for their miserable patients, the philosophy of disease is not a tale so briefly told, nor its treatment a task so easily performed.

To equalize action grievously deranged, and restore the broken balance of excitement, require something more than the withholding of food, and the abstraction of fluids.

Another source of disease abundantly prolific, is a temperature of the atmosphere inordinately high. But the ac-

tion of exterior heat does not immediately affect the blood. That fluid maintains an equability of temperature in every climate and season, and under every vicissitude of weather. Nor does the matter of caloric in the slightest degree contaminate the blood, either by passing through the solids and commingling with it, or by retaining in it the matter of *suppressed* perspiration. On the contrary, it ought rather to be considered as depurating it, and, at the same time, preventing a plethora, by the excitement of an *augmented* perspiration.

In no way, then, can a heated atmosphere contribute to the production of disease, but by exciting morbid action in the skin, which is thence, by sympathy, communicated to the interior parts of the body.

The power and importance of cutaneous sympathy are further illustrated and confirmed by the phenomena of burns. Those accidents injure nothing primarily, *except* the skin. They neither in any way contaminate the humours, nor produce a plethora. Yet nothing is more potent in the excitement of general disease. In doing this, there is but one way in which they can operate. They produce on the skin a peculiar but powerful morbid irritation, which, by sympathy, spreads to the other parts of the system, giving rise to a febrile affection, always troublesome, and frequently fatal. When the portion of the skin destroyed is very extensive, death oftentimes ensues in a few hours.

A humid atmosphere and wet clothes, are among the most fertile sources of disease. Their mode of operation bears a strong resemblance to that of cold. They neither chill nor contaminate the blood. They act simply and exclusively on the skin, producing there a morbid action, which constitutes the first link in the chain of disease that is destined to follow.

The operation of sanative agents on the skin admits of the same explanation with that of noxious ones.

The employment of baths, whether warm or cold, neither heats, nor chills, nor medicates the blood. It reaches the cutaneous organ alone, producing there a state of ac-

tion, which, by sympathy, extends to the interior parts. If marine salt, wine, ardent spirits, or any other stimulating articles, be dissolved or mixed in the water of the baths, they never make their way into the humours of the body, so as to convert them into a healing fountain. Their only effect is to heighten the stimulating power of the waters, and enable them to make a stronger impression on the skin. In sympathy alone must we search for the philosophy of their operation on the system.

On the same principle must we explain the action of blisters, sinapisms, rubefacients, frictions, the use of mercurial ointment, flannel clothing, and all other external applications. The hypothesis of the medication of the fluids, and the cure of diseases, by means of cutaneous absorption, has no foundation in truth.

The operation of a change of residence from a cold to a warm climate, in relieving or curing pulmonary affections, gout, rheumatism, and other diseases of internal organs, is explicable only on the ground of cutaneous sympathy. On no hypothesis of the humoural schools does it admit of a rational and satisfactory solution.

On the principles alone of the sympathy I am considering, can we explain the effects of the appearance and disappearance of cutaneous eruptions in relieving or aggravating internal complaints. In this enlightened and inquiring period, I humbly trust, that the gross doctrine of the metastasis of morbid matter finds no advocate.

The sympathies of the brain with the other parts of the body are so universally known and recognized, that an elaborate consideration of them would be quite superfluous.

They are manifested in apoplexy, palsy, hydrocephalus internus, deep intoxication, and all violent external injuries which that organ sustains. They extend more or less to every part of the body, but appear to be felt most sensibly in the muscles of voluntary motion, the external senses, the stomach, and the liver. I need scarcely add, that an attempt to explain, by the humoural pathology, the several

cephalic affections here specified, would be utterly abortive.

The sympathies that originate in the genital organs of both sexes, are numerous and powerful. It is peculiar to them that they begin later and terminate earlier in life than any others. During their continuance, they are, perhaps, the most commanding in their influence of any that belong to the human system. *They literally make the sexes what they are*—man and woman—not merely in relation to the propagation of the species, *but in their entire character.*

That this is true in reference to the male, is demonstrated by the immeasurable difference that exists between the perfect man and the eunuch—two beings, the very opposite of each other, both in mind and body.

In person, the former is cast in a mould denoting majesty and strength. His stature is lofty, his shoulders broad, his chest expanded, his joints firmly knit, his muscles hard, well defined, and exhibited in full relief, his neck thick, with a thyroid cartilage large and projecting, his beard close and stiff, his axillæ bristled with hair, his locks somewhat dry and curled, his eye keen, his countenance daring, his larynx wide, his voice a deep base, and his port and movement bold, elastic, and commanding.

Of this portrait the latter presents a most disgusting reverse. With a stature less elevated, his shoulders are narrow, his chest contracted, his joints loose and feeble, his muscles soft and flaccid, their figure concealed in cellular substance, and his neck small, with a thyroid cartilage scarcely perceptible. His chin is beardless, his axillæ smooth, his locks moist and straight, his eye and countenance wanting lustre and strength, his larynx narrow, his voice a shrill tenor, and his appearance and movement ignoble, feeble, and unattractive. He wants, in particular, that fine swell of the muscoli gastrocnemii, which gives to the leg its elegance of form. Such is the portrait of the eunuch, when emasculated before the age of puberty, the period at which the development of the man begins.

Nor is the difference less striking in the intellectual and

moral qualities of the two beings I am attempting to describe.

Man, in his perfect state, is highly and nobly gifted. His intellect is strong and capacious, his spirit lofty and daring, and his heart benevolent, faithful, and warm. He is capable of making generous sacrifices in behalf of his country, his friends, and even strangers, and scorns to stoop to dishonourable occupations. He respects himself, and knows how to command respect from others.

Very different is the character of the degraded eunuch. His soul is as completely emasculated as his body. Strong or elevated qualities of intellect he has none. Cunning and a capacity for intrigue, are his chief, if not his only talents. His heart is corrupt and vicious to the core. To all the moral and social feelings and virtues, he is a stranger: the organ in his bosom where generous emotions ought to prevail, is a mass of ice incased in adamant, and his temper is an offensive and disgusting compound of suspicion and cowardice, meanness, selfishness, and cruelty. As far as his mental powers qualify him, he is an accomplished villain.

Such, in relation to the character of eunuchs, is the *general rule*, which cannot be considered as materially affected by the few exceptions that have occasionally existed. Nor are there wanting strong grounds of suspicion, that where striking exceptions have occurred, the work of emasculation was not complete.

On the males of our domestic and other inferior animals, the effects of castration are exceedingly similar to those I have mentioned in reference to man. To be convinced of the truth of this assertion, we have only to compare the ox with the bull, the gelding with the stallion, the barrow with the boar, or the castrated with the uncastrated stag. In each of these instances does the mutilation inflicted, deteriorate very signally the figure, the spirit, the power, and the action of the animal that suffers. In some parts of the body this change of figure is much more striking than in others. This remark is, in a very particular manner, true in respect to the throat, the neck in general, and the occipital portion of the cranium, the latter of which is regarded in phrenolo-

gy as the seat of sexual love. Hence the neck of the perfect male is comparatively thick, the tones of his voice sonorous and deep, and the occiput of the stag is annually decorated by a magnificent pair of caducous horns. Of the latter animal it is remarkable, that if he suffer emasculation soon after he has *cast* his horns, those "branching honours" are lost to him forever, returning no more to adorn his head and give terror to his aspect.

The comb and wattles of the domestic cock may be regarded as a production of the organs of generation. On the head and throat of the capon they never appear.

Will the humourist seriously contend, that all these effects are produced through the medium of the fluids? Shall I be told that the semen masculinum being absorbed, passes into the blood, and making its way immediately to the neck and head, is there transmuted into thyroid cartilage in every animal,—comb and wattles in the case of the cock, and branching horns in that of the stag? In refutation of this, or any other hypothesis growing out of the humoural doctrines, it would be idleness to dwell. On the ground of sympathy alone, can a rational effort be made to explain the phenomena.

Over the female sex the influence of the organs of generation is no less powerful than over the male. The belief prevails that it is even more so. The ovaria in the former hold the same rank and importance with the testes in the latter. If, before the age of puberty, those organs be removed, the form and character of woman are never developed. On the contrary, every thing appertaining to her becomes comparatively masculine. She fails to menstruate, her shoulders become broad, her hips continue narrow, her breasts never swell, hairs appear on her chin and upper lip, and her voice assumes a masculine depth.

Nor are the effects confined to her person alone. She continues a stranger equally to the passion of love, and to that delicacy of sentiment and modesty of manner which belongs to the sex—and the whole character of her mind becomes coarse, and assimilated to that of the male. A change

in woman somewhat resembling this, occurs after the disappearance of the menstrual secretion, when the organs of generation have lost their influence over the system. Hence the declaration of the late John Hunter, that, in every old woman, nature makes an effort to change her into a man: and hence witches, under the figure of old women, are represented with beards.

The influence of the female organs of generation over the other parts of the system, is strikingly demonstrated in the state of pregnancy. Here the stomach is affected, the breasts swell, the cheeks become hollow, the eye is enfeebled and loses its lustre, the arms are diminished in size, and the whole body undergoes a change.

On the females of our domestic animals, the effects of spaying are too well known to require a recital.*

Sympathies of the body with the mind, are sufficiently manifested in the powerful effects of the passions and emotions, and in those of excessive and long continued intellectual labour.

* A fine illustration and conclusive proof of corporeal sympathy, are exhibited by that variety of pulmonary consumption, first noticed by Dr. Physick, which arises from an elongated state of the uvula palati.

In that complaint, the morbid irritation produced mechanically, on a very circumscribed spot, by this diseased little organ, extends first to the lungs, and thence to the other parts of the body, according to the order and prevalence of their sympathetic affinities, until the whole system becomes ultimately affected.

The cure of this disease is equally to my purpose. Remove a portion of the elongated uvula, so as to prevent it from irritating the adjacent parts, and the complaint vanishes as by the touch of a magician.

In the production of this curious and interesting phenomenon, the humours of the body take no part, except as they are affected and directed by the solids.

Indeed the fluids being avowedly formed and modified by the solids, maintain in the system a secondary standing, and must, in all cases, necessarily act but a *secondary* part. To assert the contrary, is virtually to deny that beautiful and harmonious subordination of effect to cause, which pervades the entire economy of nature.

The fluids suffer by the diseases of the solids, and may, then, perhaps, act as *aggravating* causes. But they never first derange the solids by any original affection of their own.

Joy brightens and invigorates the eye, flushes and animates the countenance, and heightens the play of the heart and arteries. When the paroxysm is sudden and violent, and the frame that sustains it delicate and fragile, it often induces fainting, and sometimes instant death.

Under the influence of rage, the countenance swells and reddens, or becomes pale and haggard, the nostrils expand, the eye flashes with a glaring fire, foam issues from the mouth, the heart throbs, the blood rushes through its channels in tumultuary commotion, and the muscular system becomes unusually firm, or is partially paralyzed, and tremors ensue. In its violent onsets, this passion also has proved suddenly fatal.

Terror convulses and shatters the frame with the force of an earthquake. It erects the hair of the head, turning it sometimes suddenly gray, throws the countenance into distortions that are ghastly and hideous, makes the teeth chatter and the heart palpitate, and affects the muscles generally with the wildest agitation. No other passion is so dangerous to females in a state of pregnancy, and it is peculiar to it, that it produces an involuntary discharge of urine and fæces. Like rage and joy, its stroke is sometimes deadly.

The effects of love, lust and jealousy, on the system, it would be superfluous to describe. They are familiar to every one: and, although not so sudden as those of the more violent affections just specified, they are no less deeply impressive and lasting.

Thus might I pass in review all the passions and emotions to which our nature is subject, and show that they unite in solemn and positive testimony, in behalf of the doctrines of sympathy, and in exclusion of all others. That they produce their effects by an admixture with the fluids, is a position which no one, I trust, will be so unreasonable as to maintain.

A more interesting illustration of the sympathy of body with mind is no where presented to us, than in the immediate and copious secretion of milk in the female breast, and its thrilling flow through the lactiferous tubes, as soon

as the lips of the beloved infant *approach* the mother's bosom. Who will deny that the tender glow of maternal affection produces this? And, admitting the fact, who can doubt, for a moment, the truth of the doctrine for which I am contending?

The subject being already familiar to you in all its details, why should I trouble you with a minute account of the effects of study, or the intense and continued exercise of the intellect, on the system of man? If you have been so fortunate as not severely to experience any of them in your own person, you have, at least, investigated, with an enlightened curiosity, the distressing and not very limited catalogue of the "*morbi studiosorum*." I only state, therefore, what to you is already a mere truism, when I subjoin, that, passing from the immediate organ of intellect, by means of sympathy, they radicate themselves, for the most part, in the alimentary canal. They much less frequently attack and shatter the brain.

I shall dismiss this head of my subject by observing, that the voluntary motions we are constantly performing, prove conclusively, the habitual and universal sympathy of the body with the mind. As far as I am informed, no humouralist of the present day, pretends to explain muscular motion through the instrumentality of the fluids. An attempt of the kind would be a gross violation of common sense.

Instances of the mind sympathizing with the body, are numerous and memorable. They are presented to us in delirium arising from gastritis, enteritis, hysteritis, and various other topical inflammations; in madness from gastric, hepatic, and muscular irritation; in satyriasis, nymphomania, and other affections of the genital organs; and in hypochondriasis, and the dejection of mind accompanying dyspepsia. In fact, they are manifested in every serious malady to which the body of man is subject, the mind being always a copartner in suffering.

I might mention phenomena in which there appears to prevail a compound of corporeal sympathy, and of the sym-

pathy of body with mind. Such is the case in relation to the impregnation of the female, connected with the communication of parental likeness. But on these topics I must no longer dwell.

Numerous and weighty as my present occupations are, I want leisure to animadvert *in extenso* on the doctrines maintained by the humoural schools. To two of their notions, however, permit me, for a moment, to invite your attention.

If I rightly understand them, their creed embraces a belief in the *contamination* of the blood in the production of certain diseases, and in the *medication* of that fluid in their cure. The diseases respecting which, in a particular manner, they entertain these opinions, are such as arise from *specific* poisons. But as no two poisons are alike, all those deleterious substances are really *specifics*. Whatever diseases, then, are produced by poisons, whether fixed or volatile, are not only accompanied by a contaminated state of the blood, but are the result of that state.

Of this description are small pox, kine pox, chicken pox, syphilis, measles, jail fever, yellow fever, the disease arising from the bite of a rabid animal, and bilious fever in all its forms.

To sustain their belief in the contamination of the blood in these complaints, the humouralists must either demonstrate the existence of such contamination, or make it clearly appear, that, by the assumption of it as a postulate, they can explain the various concomitant phenomena more satisfactorily than can be done on any other principle.

In these cases the mode of demonstration is twofold: actually to detect the poisons in the blood by means of experiment—or, by inoculating with that fluid, to communicate the complaints.

I need hardly remark, that neither of these modes of proof has ever been accomplished. On the contrary, all experiments hitherto made, have proved unfavourable to them. No febrile or other poisons have ever been detected in the blood: nor has it even been found practicable, by inoculating with

that fluid, to communicate either of the foregoing complaints. I speak with confidence on this subject, having myself performed innumerable experiments with a view to its illustration.

Fearlessly and specifically, then, do I declare, that in the blood, *carefully and properly drawn*, of persons labouring under small-pox, syphilis, measles, or yellow fever, no one can detect variolous, syphilitic, rubeolous, or pestilential matter: nor can he, by introducing that fluid into the blood vessels of persons in health, give rise to either of the diseases specified. I challenge the proudest of the humouralists fairly to make the experiment, and convict me of error, if I am wrong: but if not, frankly to confess his own error, and bow to the truth.

A few words on the assumption of contamination as a postulate.

To be in contact, is a state of things that appears to be regarded as wonderfully operative. Most physicians seem to think, that if they can bring *together* two objects, the one that is to act, and that to be acted on, they can easily understand, and as easily expound the entire philosophy of the phenomenon.

They fancy, for example, that by conducting semen masculinum to the female ovary, or by bringing the seminal fluid into contact with the ovulum in the cavity of the uterus, they render easily intelligible the process of impregnation.

In like manner, they seem to imagine that by placing contaminated blood in contact with the several organs of the body they unfold, as by magic, the whole philosophy of the mischief that ensues.

But very different is the true state of the case. Where living matter is concerned, *contact* gives no facility in understanding or explaining the action that takes place. The *modus operandi* of *distant* stimulation in the production of an effect, is just as intelligible as that of *proximate*.

One description of ophthalmia is cured by the action of tartar emetic on the stomach: another by that of a blister behind the ear or on the temple—and a third by the immediate application of mercurial ointment to the part affected.

Of the true rationalé of these three curative processes, we are equally informed; or, rather, equally uninformed; for, in honest truth, we know nothing about it. A knowledge of the fact is all we possess. To unfold the philosophy must belong to a more enlightened age. We simply know, that in the two first cases, the remedies act by *sympathy*, and in the last, by immediate original impression, and there unfortunately our science ends.

Such is also the real state of the case in every other instance that can be adduced. After the humouralists have passed *around* difficulties—remove them they cannot—and floundered through error to bring into contact the *irritant* and the part to be *irritated*, they find themselves as deplorably ignorant of the *modus operandi* in the phenomenon that follows, as if they had allowed the *agent* and the *subject* to remain apart. Hence they very unwisely encounter, of choice, two sources of difficulty instead of one; the difficulty of *bringing together* and that of *subsequent exposition*. Such shall never be my practice. I am too little of the knight errant voluntarily to encounter two enemies, when, without a serious impeachment of my courage, I may be permitted to combat single handed with one.

Touching the *medication* of the blood, my remarks shall be few and brief. In refutation of this notion the same arguments may be urged that have been already opposed to the hypothesis of its contamination.

In opposition to all that has *yet* been said and written on the subject, I avow my entire conviction, that in the *living and perfect* blood no remedy previously administered in *any way*, has ever been found afloat in its *formal state*.

After that fluid is dead and has undergone real dissolution, and more especially, after it has sustained the tortures of the chemist's crucible, I care not what is discovered in it. Nor have the ingredients which may appear in it, under these circumstances, the slightest bearing on the present question. They are the result of decompositions and recompositions that have taken place in it after its elimination from the vessels that contained it.

After you have consumed on your hearth by fire a few logs of hickory, you find in the ashes a considerable amount of potash. But will you suffer the chemist to persuade you that that article *in a formal state* existed in the hickory tree when alive and growing in the forest? No; the potash, whatever may be the *modus operandi* of its formation, is the result of the chemical process of combustion, and never either flowed in the sap, or was stationary in the wood, of the living tree.

The chemist takes a piece of dead muscular flesh, submits it to the inquisition of his laboratory, and produces from it a large amount of nitrogen gas. But shall I be induced to believe that that substance existed *formally* in the muscle when the animal to which it belonged was alive and in health? As soon could I be persuaded that the flowing mane of the war-horse, or the gaudy plumage of the peacock's tail existed *formally* in the blood that nourished them.

Nor, until reasons more cogent than any that have yet appeared shall have been presented to me, will I be induced to believe that soda, prussiate of potash, or any preparation of iron, has ever existed *in a formal state*, in the *living blood* of a human being. I repeat my persuasion, that the chemist first forms these articles in the *dead blood*, and finds them there afterwards.

Permit me to add, and to pledge myself to prove hereafter, the truth of the assertion, should any one call it in question, that many remedies *acting at a distance* cure complaints, which they would render much worse, were they *applied immediately to the organ diseased*.

But I must hasten to close this letter, which is already most unexpectedly and unmercifully protracted.

Whether you will consider it as containing any arguments worth preserving in favour of the doctrines of sympathy, I cannot tell. Nor does my uncertainty on the subject give me any concern.

But of this I am confident, that you will not hold in doubt either the reality or strength of the *sympathies* I pro-

fess to cherish for your fortunes in life: nor will you refuse to consider me as actuated by much more than diplomatic sincerity in adding,

May God preserve you many years!

CHARLES CALDWELL.

CHAPTER IV.

ART. VIII. *Historical and Critical Observations on Syphilis.*

By A. J. L. JOURDAN, M. D. Translated from the French,
by R. LA ROCHE, M. D.

(Continued from No. V.)

IN the preceding chapter, we have attempted to demonstrate, that the novelty of the names given to syphilis, should not be considered as a proof of that of the disease itself. We will now discuss another argument, derived from the silence of the ancient historians, by whom, it is said, no mention is made of persons afflicted with diseases caught by intercourse with women—and also from the silence of the ancient poets, satirical as well as epigrammatical, in whose works, it is also asserted, no passage is to be found applicable to the venereal disease. By Mr. Le Clerc this is more particularly urged—and Friend, Astruc and Girtanner, have not hesitated to attach to it the greatest degree of importance. What subject, exclaim these four writers, could have proved more proper than this for the exercise of the spirit of satire, had the disease really been known!

It is evident that on medical subjects, the opinions of the vulgar are always framed on the reigning medical theories of the times. And only modified in some cases, by wrong interpretations, and by conclusions, which though drawn from facts by themselves exact, are formed in a manner too precipitate and hasty. The opinions of physicians are

first adopted by the learned, and next believed by the illiterate, either because he hears them repeated on all sides, or else because they carry with them an appearance of truth ; or finally, as they present something wonderful, which at all times pleases and seduces him. In some instances they become so firmly rooted, that, for their eradication, the greatest struggles are necessary, and often will we even find the strongest efforts of reason to fail, against the power of habit, which always operates in their favour. Now, we have seen, that the ancients were as well acquainted as ourselves with all the various venereal symptoms, but that on the subject of the origin of these latter, their opinions were different from those entertained at the present time—that so far from tracing them all to one and only cause, as so many branches arising from the same trunk, they were very distant from the belief that they were at all attributable to the pleasures of love. The origin of some of these affections was however known to them ; and the poets have not been so silent on this subject, as is generally supposed. On the effects of the debaucheries of the times, they have exercised their sarcasms, in a similar way that those of Regnier, Marot, Bayf, Sigogne, Berthelot, St. Amand, and Rabelais were excited by the excesses of their cotemporaries.

The passage in which Horace speaks of the *morbis campanus*, hardly deserves our attention : much dispute has excited us to the real sense to be attached to these obscure terms, no where else to be found. Some believe them to designate a moral affection, whilst others think they indicate a peculiar disease : it is difficult to say any thing positive on the subject. We may, with equal propriety, think with Astruc, and the celebrated Dacier, that to understand by these terms the syphilis of our day, is a mere folly—as to admit the sentiment of the celebrated John Zachari Platner, who maintained the *morbis campanus* to have borne some analogy to this last affection.

The expressions of Juvenal are much less equivocal than those of Horace, especially when speaking of the physician, who smiled as he was cutting large and swollen

marisca from a patient. These fungous excrescences are frequently the results of the most infamous prostitution. They are without doubt venereal symptoms, or, as is generally expressed, affections arising from an impure source. But to extricate themselves from this embarrassment, the partisans of the new origin of syphilis, deny altogether the venereal character of these affections. "The censure of the poet," says Astruc, "falls less on a shameful disease than on habits the most corrupt and vicious." Nothing can appear more convenient than such a subterfuge—it puts an end to all difficulties; but it would require in us great good nature to find it altogether satisfactory.

The same mode of reasoning is applied to the jests of Martial, on *ficosi*. "These," says Astruc, "follow on debaucheries against nature; but without venereal infection. The intention of Martial, when speaking of these, was merely to reproach to those who were affected with them, their effeminacy and prostitution." We confess this was really the intention of the poet: but this is precisely what renders his testimony so valuable, as was already observed by Fabius Pacius, an Italian physician, who published commentaries on Galen in the year 1608. Martial tells us, that the shameful prostitution, the object of his satires, produced the same results in his days that are observed to occur at the present. What more could we expect? The poet could not surely make use, in designating these affections, of terms that were not yet invented.

Although ancient literature does not abound in passages applicable to the venereal disease, that of the middle ages on the contrary, furnishes us with a much greater number; because at that period the first germ of our present theory began to be developed. In a satire entitled, *De corruptione omnium statuum et imminente interitu mundi*, we find mention of the following consequences of obscenity, adultery, *impurity* and leprosy. We shall soon show that by *impurity* was meant a peculiar morbid state, caused by frequent intercourse with prostitutes. In the works of Francis de Villon, who may be considered as having been a consummate

libertine, we find many passages, alluding to the diseases contracted from lewd women. One especially, gives us a perfect idea of the notions of the physicians of the times, on the nature and properties of the periodical discharge of women. The obscenity of all these passages prevents us from transcribing them here. The same reason will cause us to omit another far more clear and decisive, found in a Latin ode addressed to Priapus, by Pacificus Maximus. A mere reference, besides, will suffice, as our intention is only to prove, by the existence of such passages, that the poets anterior to the sixteenth century, were not as silent on this subject as is generally believed.

We, in like manner find, in historians, very evident traces of diseases caused by debauchery. Beckett relates, from a manuscript found in the college of Lincoln, at Oxford, that John of Ghent, Duke of Lancaster, died (in 1399,) of a gangrene of the genital organs and body, produced by intercourse with women. The author of the manuscript assures of his having seen several persons die of the same accident. Pliny the younger, relates in his letters an anecdote somewhat similar. A woman seeing her husband affected with ulcers on his genitals, which from long continuance were becoming gangrenous, and despairing of a cure, rushed with him into the lake Como. Josephus informs us, that Apion died of an ulcer on the genitals, which caused a gangrene of these parts. Herod, king of the Jews, according to the Hebrew author, met with the same fate. It is true neither Pliny nor Josephus ascribe these diseases to intercourse with women, though it is difficult to believe they could have proceeded from any other source. With respect to the cause of the malady which killed the emperor Galerius Maximus, there cannot be the least doubt. This cruel monster died of ulcerations of the genitals, and fistulæ in perineo; the whole of his body exhaled a most offensive stench. Palladius, Bishop of Hellinopolis in the beginning of the fifth century, says, that a certain Hero, having lain with an actress, was seized with an anthrax on the penis, and in the course of six months, his genitals became

gangrenous, and sloughed off. This expression of anthrax furnishes Astruc with another subterfuge. Carbuncle, says he, is a very different disease from the syphilis. But can it be expected that a priest could observe precision in terms to which even physicians are far from always confining themselves? Is it not sufficient that Hero should have been affected with a disease seated in the genitals, and caught from a prostitute, to warrant the belief that the disease was venereal?*

It is here the place to indicate all the distinctions which the partisans of the new origin of syphilis have imagined for the purpose of supporting their historical romance, and which we have already in part noticed in our second chapter. Let us listen to Astruc. "The diseases which we have mentioned did not all proceed from an impure intercourse; for the organs of generation are exposed to a number of accidents, independent of any venereal virus."—This is true—though, from their situation, these parts are more secure than any other, from the influence of external agencies. But when it is expressly stated, that these diseases arose from intercourse with women, can we any longer deny the existence of a venereal affection? But this does

* Truth forces us to confess, that several of the partisans to the ancientness of syphilis, have made use of arguments in support of their opinions, which Astruc and Girtanner have with ease refuted. We will mention as examples John Lange, who thought that syphilis had been described by Hippocrates in his third book on epidemics—Gardane and Cezan, who imagined they had discovered it in the plague which broke out at Athens, the second year of the Peloponnesian war, and is so well described by Thucydides—Alliot, who saw it in the life of Augustus by Suetonius, in that of Tiberius by Tacitus, and in two of the metamorphoses of Apulea—(there is however something in these last, which, on the extreme, can be considered as syphilis)—Gerard Goris, who found it in a passage in Valerius Maximus—Calmet, who maintained it to be the *Leebius morbus* of Lucian, and the *Nolanus luxus* of Ausonius. We might also cite Guido Patin and others. It is these ill chosen arguments, that have given to the defenders of the American origin, such a degree of assurance. Their adversaries have, in their support, employed the greatest efforts, at the same time neglecting one, which appears to us, of the utmost importance, and has not as yet been made use of by any one. I allude to the revolutions which have at different times taken place in medical theories.

not appear to embarrass Astruc and his followers—for by means of a subtle dialectic all difficulties are overcome. “*Public women have at all times been very impure; so that lewd men who frequented them much, must often have contracted phlogoses, inflammations, abscesses, ulcers, and cancers of the genitals. Excessive venery was sometimes sufficient to produce these diseases, which may also depend on an acrid, saline, and hot semen, on the long continued afflux of the blood, and especially on an abuse of excitants.*” It is evident that not to perceive the puerility of such reasonings, it requires a great prepossession in favour of a preconceived doctrine. What could Astruc mean by this *impurity* of prostitutes, if, from a mere difference of times, it was, as he seems to believe, capable of producing two orders of phenomena, both so similar and dissimilar. But he goes still further. Aurelius Minadoüs had said in 1596, that the syphilitic virus arises from the corruption of several seminal fluids mixed in the uterus of the most dissolute prostitutes. But after thus having, to a certain degree, approached the truth, the reigning prejudice in favour of the American origin, misleads him from it, and causes him to make a most extraordinary assertion, in declaring that what he had said, is only applicable to the women in America. Now, Astruc, pleased with this last restriction, approves of his reasonings, without, however, perceiving that by so doing he is led into the greatest inconsistency—for if the syphilitic virus really originates from the cause alluded to by Minadoüs, why should it be more liable to affect the women of the new world than those of the old continent? even supposing them as dissolute as was falsely maintained by Americus Vespucius, they were far from having carried moral depravity to that height at which it had arrived in Europe and Asia, when Cleopatra, the female part of the families of Augustus, and of Alexander the Sixth, were terrifying the world with their most infamous excesses. How has it not been perceived that to attribute a disease to debauchery, and at the same time to maintain it to have taken birth in a country where, from the nature of things, excesses of all

kinds could not have been, and, in fact, were not, carried as far as in those regions in which it is supposed to have been brought, is falling into the grossest contradiction? If there really exist diseases, which, though contracted from females, are not venereal; since, from the reigning theories, the treatment must vary considerably, there should also be some characteristic symptoms by which they might be distinguished. But what are those signs? Can we enumerate a single one, of all those which to this very period have been assigned, which is to be considered as indisputably pathognomonic, though even the very odour of the sanious matter has been supposed a good criterion? * How are we to distinguish these affections from those not venereal, when, as if to render the diagnosis, already embarrassing, still more so, it is contended, that from the same cause, that is debauchery, may arise an *impurity* of women, and likewise a venereal and non-venereal disease. Astruc, both with respect to theory and practice, is not only four hundred years in arrear, and writes as would have done a physician of the thirteenth century; but is also guilty of most unpardonable contradiction and manifest error, when he admits, that diseases produced by the same cause, appearing under the same circumstances, and presenting the same phenomena, form, nevertheless, sometimes a series of affections closely linked together; at other, are composed of acci-

* Let us take chancres as an example. The venereal chancre, it is said, is to be distinguished from that not venereal by acute pains, a tendency to deepen, callous and prominent edges, a greenish pus, and an uneven bottom. The two first symptoms, besides being often not present, do not exclusively belong to chancre. As to the three last, they depend on the peculiar texture and sensibility of the parts, for they are not observed in chancres on the body of the penis and scrotum. Two more symptoms are said to characterize a venereal chancre: its appearance after intercourse with a female, and its cure by means of mercury. The first of these simply indicates the existence of a venereal ulcer, not a venereal virus. The second proves nothing: for besides, that mercury is not a specific in this disease, as is now generally believed, the cure of a chancre during its administration may be, and we are of opinion that it is always independent of the remedy. To assign such distinctive characters, is less to reason, than to conclude, like the vulgar—*post hoc, propter hoc*.

dents, independent, the one from the other, according as they arise or not from a general cause, product of the imagination and of prejudice. We shall soon find another, not less striking proof of the empire of fashion, and the influence of the spirit of party.—We shall see those very writers who deny the syphilitic nature of diseases of the genitals, described before the end of the fifteenth century, insensibly range under the domain of syphilis, most of the affections incident to the animal economy; and thus transform this disease into a most hideous colossus,—compound of accidents the most unlike and dissimilar, and of which there finally remained but a confused idea, which was the more propagated as it was by no one understood. But let us not anticipate. Let us first ascend to the very origin of a theory, which produced so many strange subtleties, and, like all other medical doctrines, did not merely change the course of speculations; but also exercised a most powerful and pernicious influence on the mode of cure of the disease to which it applied, and likewise on the happiness of mankind in general.

We have already seen, that the ancients were acquainted with all the symptoms which at this period are denominated syphilitic. We have also seen that they attributed these accidents to excessive venery, to abstinence in the pleasures of love, to the deleterious action of the menstrual fluid, and to a morbid condition of the humours originating in the liver. After having captivated all minds, for the space of several centuries, these notions were finally overturned by time, that destroyer of all things. Some traces of them, however, remained, and are found not only in the course of the epidemic of the fifteenth century, but even long after the cessation of this terrible calamity; for it was natural that this pretended new disease should first bend to the then received opinions, before modifying and changing these. John Almenar attributed the morbus gallicus to a morbid constitution of the humours, which, taking origin in the liver, is propagated to the genital organs. James Cataneo believed it to depend on a general corruption of blood, caused

by the poison of the menses, and though he began to think that the diseases of the genital organs were caused by the pleasures of love, he, however, was of opinion that those persons were especially predisposed to them, who had a dry and warm liver, or a humid and cold brain. John Johnston, in 1635, placed the seat of the disease in the liver, where, as late as 1669, Francis de Roma believed it to originate. Astruc, in endeavouring to find out the causes that could have produced syphilis in St. Domingo, thinks, that he cannot assign any other than the acrimony and virulence of the catamenial discharge in hot climates, and admits indiscriminately all the different stories which have been related by travellers, imbibed with the popular prejudices on the subject. The influence of the liver and of the periodical discharge, were, nevertheless, of all the different theories, the first abandoned, perhaps because it had been the longest in existence, and had reigned most despotically. But such was not the case with excessive venery, which, for a long time, was continued to be considered as a powerful source of venereal affections. In 1580, the Spaniard, John Calvo, though admitting the American origin of syphilis, could not but think immoderate venery, between two persons, otherwise healthy, capable of producing in them symptoms, afterwards transmissible to other individuals. N. D. Falk, John Christlieb Kemme, and John Adolphus Mathieu Shæffer, have held latterly the same opinion.*

It was also that of John B. Sitoni, and of John Benoit Sinibald. John Colle went still further: he supposed that syphilis in some cases was produced spontaneously, without infection, and from the mere action of a depraved atmosphere. John Dolæus relates seriously the history of a man,

* It was already much, that these writers, though not opposing altogether the modern theory of syphilis, should however have presented it in a modified form, in admitting the disease capable of being contracted without an exposure to the action of its peculiar virus, which by them was called *infectio innocens*: for in these times all diseases of the genital organs were considered the products of the virus, caught from an impure woman, and it was not believed they could be developed spontaneously between two persons enjoying perfect health.

who, from the influence of the bad air he daily breathed, and without having had connection with a woman, was attacked with syphilis.* But no one appears to have been more credulous on this subject than Christian Francis Paullini, who says, that a young man contracted the venereal disease, owing to his having, during a number of years, nourished his imagination with voluptuous ideas, and occasioned seminal discharges by constant masturbation. Neither were the physicians of the times distant from the belief entertained by the ancients, that the semen, when too long retained in its reservoirs, becomes altered, and thus occasions a number of affections of the genital organs.† But they principally accused the mixture and corruption of several seminal fluids in the uterus of a woman, and this indeed formed one of the principal arguments alleged by the enemies of the new origin of the disease, so that, according to Paul Mattot, *Nulli gentium sit injuriæ syphilis, sed apud omnes nascitur alitur.*

“It is well known,” says Gervas Ucay, “that if a healthy girl, or even, to prevent any suspicion of the existence of the venereal disease, a virgin, has connection with half a dozen of boys as healthy as herself, several of these latter, or even all, by a repetition of the venereal act, would be-

* Father Labat explains in this way the origin of syphilis in the new world, whence he believes it to have been brought. According to this writer, the disease arises from the impure air of the country, where it is so indigenous that children, whose parents are free from it, are at their birth affected with its symptoms. When the Hollanders, he continues, first settled in America, they contracted the disease spontaneously, and without having had connection with the women. But they were soon freed from its ravages, since it spontaneously abated when the trees of the forests were cut down. These gross errors need no refutation.

† From this erroneous theory arose the most disgusting prejudice, that a blennorrhagia can be cured by having connection with a negro woman or a virgin girl. This popular opinion, which, independently of its immorality, can be attended but by deleterious consequences, was nevertheless supported by physicians such as Colle, Samuel Hafenreffer, and as late as 1740, by John Jerome Kniphoff. It evidently arose from an abuse of the advice given by the physicians of the middle ages, of making a moderate use of the venereal act for preventing the spontaneous corruption of the semen.

come affected with syphilis." These very expressions were afterwards literally copied by Gauthier Harris, P. Sorbait, Charles Dionis, N. M. Gevigland, Joseph Gardane, Jourdan de Pelerin, and others.*

But whatever were remaining of the ancient opinions, to which little attention was paid, and which were merely noticed to be turned into ridicule, the depravity of morals, which in the middle ages was carried, from all accounts, to a most incredible height, had singularly multiplied the diseases of the genitals, as may be ascertained by a reference to the authors of those times. From this necessarily arose a more thorough study of these diseases, and consequently a change of opinion with respect to their source and origin. The physicians of the thirteenth century, therefore, no longer remained contented with attributing these maladies to only four causes, as had been done by their predecessors; but considered most venereal affections to arise from a peculiar state denominated by them *impurity* (*foeditas, foetiditas, sordes, immundities orde.*) This condition more particularly manifested itself in women, and those who were thus affected were called *impure* or foul (*mulier fada fatida, immunda.*) We do not find this expression anterior to the time of William Salicet, who was the first to make use of it; but it may be observed in almost every page of the works of Lanfranc, Guy de Chauliac, Valescus of Tarento, Argelata and other writers of the middle ages. Argelata, whose works, published about the middle of the fifteenth century, served for a long time as a manual to surgeons, describes the *impurity* of women in the following terms, when treating *de pustulis quæ adveniunt virgæ propter conversationem cum fædâ muliere: ex materiâ venenosâ quæ retinetur inter praputium et*

* Even the false notions on the nature and character of the hæmorrhoids, have been preserved in the medical world. Of this we find a proof in the work of George Theophilus Osterdinger, a popular medicum published in 1773. In this he asserts that hæmorrhoids produce sometimes on the genital organs, diseases very difficult to distinguish from those of true venereal.

pellem virgæ causantur istæ pustulæ tales per hunc modum, quoniam ex retentione illius materiæ quæ remanet inter pellem et præputium ex actione viri cum sædâ muliere, quæ non respirat, putrefit. Valescus expresses himself in nearly the same language: *ulcera et pustulæ fiunt in virgâ—causæ possunt esse vulnus, vel attritio et coitus cum sædâ, vel immundâ, vel cancrôsâ muliere. Juvenibus frequentius accidunt, quòd cocunt cum fœminâ habente ulcus in matrice, cum suâ contagiositate inficiunt virgam, et in eâ fit ulcus.* It is therefore evident, that the physicians of the middle ages understood by the term *impurity*, a morbid contagious condition. It is unpardonable to say, as has been done by many, that the ancients understood by *impurity*, the true cancer of the uterus, for at that period all puriform discharges whatever, were attributed to ulcerations, (which error was handed about to the present time on the subject of blennorrhagia,) and because Valescus distinguishes very accurately the *impure* woman from one afflicted with carcinoma. The greatest fault committed by those who have combated the ancientness of syphilis is, that they have never paid attention to the period at which the works, treating of venereal affections, were written, nor placed themselves in the situation of their authors. They have, on the contrary, always judged of what they read according to the ideas of their times, without, however, first ascertaining their ancient or recent origin, or even settling all the doubts that could be raised with respect to their correctness. It requires a much more enlightened criticism to consult with advantage the history of medicine. This *impurity* was formerly regarded as not merely very dangerous, but even as menacing the life of those affected with it, and sometimes becoming the source of serious maladies, which were almost exclusively treated by local means.* In ascending still further towards

* The vague terms made use of by the physicians of the middle ages, when speaking of the *impurity* of women (though they attached to this term some peculiar ideas) have led many to the belief that they only regarded it as an accessory circumstance, such as uncleanness, or as a sanious and puriform matter necessitating the employment of lotions, more especially, as Gadesden says: *si quis vult membrum ab omni corruptione ser-*

antiquity, we find that warty and condylomatous excrescences were not always considered as free from danger. Celsus says they are of bad nature when appearing on the genital. Leonides, Philumenus and Aetius, distinguish them into benign and malignant. Thus, on one hand, physicians class these excrescences with the other accidents caused by intercourse with woman; whilst on the other, the Satirics mention them only when speaking of the dissolute customs of their cotemporaries. Can we for a moment suppose, that so many authors differing so widely as to their views, and writing at very different periods, could, by mere accident, have placed almost invariably two things in relation with each other? Should we not on the contrary consider these as believing the one to arise from the other, although they have not thus expressed it.

The theory of the *impure* state continued to be developed. It was gradually extended until it finally expelled from the nosological frame, all those that had preceded it. Instead of believing with the ancients, that the diseases of the genitals, depend on an *internal* cause—physicians insensibly approached nearer the truth, finally admitted them to result from a morbid action, which exercised primarily *from without*, affects the organs of generation. But no sooner had this general revolution been effected, than instead of being considered as a salutary crisis brought about by the medicating powers of nature, they were regarded as a focus reflecting from all parts towards the centre, a powerful atmosphere of infection; so true it is that the human mind,

vare, cum à muliere recidit, quam forte habet suspectam de immunditie lavet illud cum aquâ, aceto, uriuâ. But if we reflect on this passage we will find in it less a precept on cleanliness, than the intimation of a preventive against the erysipelatous inflammations, ulcerations, and discharges caused by the *impurity* which was considered the source of a contagious principle, manifesting itself, however, but locally. Since this period a number of similar preventives have been proposed, but from the notion of a most subtle venereal virus, they have been considered of no use. We are, however, far from partaking in this general opinion. Nevertheless we consider ourselves warranted in believing that the doctrine of the middle ages has insensibly led to the present theory of syphilis.

from its very nature can rarely avoid passing a just bound, and that it constantly abuses of those truths it discovers, to fall into error.

It is, however, necessary that we should descend to James Cataneo, to discover a sensible transition from these ideas on the contagious *impurity* of women, to our present doctrine of syphilis. Cataneo, in whose works are first found some confused notions on the subject, admitted the existence of a virus, *invariably acting from without*, which is caused by the periodical discharge of women, and is expelled by nature in form of cutaneous affections, pains and abscesses of the joints. John Vochs, his cotemporary, maintained that gross and mucous aliments produce, in damp weather, a slimy and glutinous ferment, which nature converts into an acrid and putrid ichor, and expels from the body, either promptly, thus exciting the plague, the most acute of all diseases, or else slowly, causing the most chronic of all affections, syphilis.* At this period, which dates from the end of the first ten years of the sixteenth century, physicians were beginning to consider most affections of the genitals, as arising from debauchery, though they did not apply to them the denomination of venereal, which was first given by James de Bethencourt, in the year 1527†. Alexander Benedetti thought that they arose from the action of a virus, which

* This theory not only proves, that at the time of Vochs, venereal affections were confounded with another disease truly epidemical, but likewise demonstrates that this latter was far from being considered as a new malady. Conrad Schellig, the first author who treats of it, classes it among the *Formicæ*, a species of eruption, which, though now unknown, was, at that time, very common, and he further adds—*de nominibus non est curandum, cum res ipsa sit nota.*—Widmann likewise calls it *pustule formicales, seu asafaticæ*. Wimpfeling, author of a preface to the work of Schellig, says, that syphilis *non quidem (ut vulgus opinatur) novus est morbus, sed superioribus annis tam visus quam agerrime perpeusus*. Widmann says he saw it under the same form as early as the year 1457, and by Gaspard Torella it is assured, that it differed in nothing from the plague which reigned in the time of the emperor Heraclius.

† Astruc is mistaken when he asserts that this term was first made use of by Fernelius.

was developed in the humours, and exhaled by the genitals of women more particularly, and which produced a general dyscrasia of the fluids. He therefore never neglects, whilst treating of each disease, to notice the great influence exercised on it by the venereal taint. He mentions many affections as depending on this venereal dyscrasia, which, though known long before his time, are far from being attributed to this cause. He consequently greatly contributed to the propagation of this idea, which, though it undoubtedly rectified many errors, and rendered evident, for example, the connexion existing between buboes and chancres, soon became so prodigiously extended, as to give rise to the theory of disguised venereal diseases.* The pure, and sometimes elegant style which Benedetti substituted to the barbarous Latin of his predecessors, his new and sometimes happy expressions—the sound ideas exposed in his anatomy, which contains the first rudiments of a rational physiology, and finally his excellent book on pathology, gave to his authority the greatest degree of preponderance; and caused his opinions to be generally adopted. Subsequently therefore to him, the various venereal affections, no longer examined separately, were soon incorporated together, with so much the more ease, since Bartholomew Steber, Vochs, and others, had, some years before, considered them as an inveterate consequence of the epidemic of the fifteenth century, resulting from the acrimonious humours of which it had left the germs in the system.†

* How could Girtanner assert that the doctrine of disguised venereal diseases, far from being very ancient, was invented by Baglivi, and was only adopted a number of years after. We have, however, proved, that it dates from the times when the old theories were abandoned, and that ever since that period it was generally adopted, though we must confess it was principally developed since the days of Baglivi. This theory was a natural consequence of the belief in a venereal virus. With the exception of Astruc, no one, perhaps, has read history with so much passion and partiality as Girtanner.

† It would appear that this last opinion was very rapidly propagated, since John Manard, in a letter written to Michael Sactanna, in 1525, says,

John de Vigo, who lived after Benedetti adopted his opinions. He believed, that the venereal disease appears under all possible forms, and may be complicated with various other affections. George Vella reasoned not very differently. The female genital organs, says he, secrete abundant but ill-digested mucus, which, when accumulated, becomes putrid and infectious to men, in whose blood it insinuates itself, so that the disease *trahit originem à partibus obscænis, tanquam à propriâ minerâ*. What appears most remarkable is, that Vella already admitted the possibility of what Fabre has since called *taking the disease immediately (d'emblée;)* for he maintains that the symptoms do not always appear on the genitals, and that the putrid matter may be insensibly absorbed, and communicate the disease, after a certain length of time, to the whole body, by a sort of sympathy existing between the parts—which brings to mind the ingenious but paradoxical hypothesis, which, though claimed by Barthez, has been generally attributed to John Hunter. So long as the internal vital heat resists the efforts of the disease, the genital organs are alone affected. But should nature yield in this contest, then the putrescency is propagated to all the humours of the body (so also when the poison finds these last predisposed to putrefaction) infects them all, without however affecting the genitals, which constitute, in general, the focus of the contagion.*

that the ancients were already acquainted with all the various venereal symptoms, but did not observe in their description the order and connexion which exist among them. This remarkable passage corroborates our opinion on the origin of the present theory of syphilis. How many thoughtless assertions would there not be spared, were physicians aware of the utility of reading medical books in a chronological order, and noting the different revolutions successively experienced in medical theories.

* From this Vella explains the reason why syphilis was not known to the ancients. It only appeared, says he, in the fifteenth century, because

From all this it consequently appears, that already at that time the foundations of the present theory of the venereal disease were established ; but physicians had not yet entirely abandoned the Galenic doctrine of the humours, and therefore united, in the most singular manner, their new ideas on the subject, with those formerly taught by Galen and the Arabs. From this arose very many errors, which continued to be propagated even long after the overthrow of those theories that had given rise to them, and which date from Paracelsus, who, in giving all possible extension to the new doctrine, carried it beyond the limits of truth, within which it had hitherto been restrained. Paracelsus it was, who first opposed and overturned the doctrine of the four humours ; who first maintained that debauchery *alone* causes syphilis, and that no one becomes affected with it without the influence of Venus, *unless however he has contracted it during the very act of conception.*

It was he who first arranged under the banners of this disease a number of accidents, such as ficosi, rhagades, blennorrhagia, chrystalline, &c. which had before been attributed to other causes.* He the first admitted the great influence produced by this *venereal taint*, on a number of diseases of

at that time the particular constitution of the atmosphere greatly contributed to augment the depravation of the humours, or at least to predispose these last to a morbid change. This shows that the sentiments of Vella were very similar to those of Leonicens.

* From this arose the error which Astruc committed in fixing the dates of the pretended epochs, at which appeared the different venereal symptoms. Thus, he says, that blennorrhagia was first observed by Bethencourt ; that B. Victorius first saw rhagades ; that the falling off of the teeth, hair and nails, were first noticed by Fracastor, and that Massa, Lobera, Paracelsus, and Anthony Gallo, were the first to see buboes. In our first chapter we have completely refuted this assertion. Astruc is led into error, from his not regarding these several accidents as *essential diseases*, but as mere symptoms of a general affection of the animal economy. In a similar manner reasoned most of the subsequent writers. Even admitting the correctness of his doctrines, he nevertheless was mistaken, since Marcellus Cumanus, surgeon in the Venetian army at the siege of Novara, during the first ravages of the epidemic, assures his having treated many cases of buboes.

entirely different nature, such as jaundice, dropsy, dysentery, phthisis, pleurisy, erysipelas, &c. Finally, he was the first to oppose the employment of the so much praised sudorific decoctions, to direct mercury as the *sole and only specific*, and to recommend openly its internal administration, which though in use a number of years before, had not yet been advised in so public and general a manner.

The revolution which Paracelsus caused in the medical science, was of too important a nature to prevent his ideas on the venereal disease from meeting with many defenders. Fernelius even adopted and extended them all, since he was the first to admit of the existence of a specific virus, which, acting on the genitals, produce ulcers and buboes, or else blennorrhagia, and which, at a later period, when introduced into the circulating mass, causes many other affections. This elegant writer, whose agreeable and pure style reminds us of the golden age of latinity, opposed with warmth the Galenic doctrine, drew a distinction between the epidemic of the fifteenth century and the syphilis of his time, which last he considered as having degenerated from the former; described the progress and symptoms of syphilis, and divided the last into primary and secondary, or into signs of a local and general infection.*

For several years before this period, however, and as a natural consequence of the adoption of the theory of Paracelsus, it was believed, that the syphilitic virus, when once introduced into the system, can never, or at least with the greatest difficulty, be destroyed; consequently, the theory of disguised venereal diseases every day acquired new proselytes. We therefore find it indicated by Vidus Vidius, according to whom a radical cure is never to be expected in a person who has once been affected with this disease; because this last always reappears under a different form..

* From Ferneli may be dated the period at which the several venereal accidents began to be considered as symptoms of *one and the same disease, the venereal*, and at which this last name became of general use even among the vulgar.

The little foundation of this prejudice Alexander Massaria attempted in 1598 to demonstrate, but in vain; it soon extended with a wonderful rapidity. It was more especially maintained that the father and mother may transfer the virus to their offspring. Anatus Lusitanus relates the history of a man, who ten years after contracting the venereal disease, which it was supposed had been perfectly cured by the remedies administered, married a woman, from whom in the first five years of their union, he had two healthy children, but who in the seventh was delivered of a child affected with syphilis, which the author attributes to that under which the father laboured seventeen years before. Jerome Capo de Vacca appears no less credulous, and Eustachius Rudius likewise adopted this singular and erroneous idea. J. B. Sylvaticus went further, and asserted that all children born of parents affected with syphilis, have *necessarily* themselves this disease. Hercules Sassonia believed it capable of assuming the most diversified forms, and notwithstanding the incompatibility of this opinion with that of the American origin, which he had adopted, was not far from regarding the plica polonica as one of its consequences. This same opinion, in modern times, has been mentioned by John George Wolframan. Richard Morton also admitted, though more in theory than practice, the existence of a species of phthisis pulmonalis arising from the too sudden suppression of a blennorrhagia, or from the accelerated cure of a chancre.

George Baglivi, led by the torrent, thought that the virus, when once introduced into the system, can never be totally eradicated—that the remedies employed to combat it, ameliorate, but do not destroy its acrimony; that in a space of time more or less considerable it re-appears under the form of other diseases, thus deceiving even the most enlightened practitioner, who is far from suspecting the real cause of those affections which he sees before him. Nevertheless Baglivi did more than any of his predecessors, for he at least indicated a supposed criterion by which disguised venereal diseases may be distinguished—namely:

a fixed pain in the middle of the sternum. Frederick Hoffman, together with his illustrious rival, G. E. Stalh, fell into this error, which may be considered as having been that of the age. Not having succeeded in curing a disease that caused the death of a child seven years old, and who had previously enjoyed good health, and not being able to assign a cause to this affection, Stalh suspected the child to have been affected by the milk of its nurse. He likewise maintained that the cessation of all venereal symptoms is not a proof of the total destruction of the cause from which they arise.*

With what pleasure do we not notice the first germs of opinions which in time become so deeply rooted; but on the other hand, how can we fail to deplore the weakness of the human mind, which in combining them with the ideas of Boerhaave, who placed the seat of the venereal virus in the adipose substance, finally invented the monstrous mode of treatment by salivation, which continued to prove a scourge to those attacked with the disease, until the year 1718, when Francis Chicoyneau demonstrated in a thesis supported at Montpellier by A. Pelissery, that it is always useless, constantly hurtful, and sometimes dangerous. Paul—Theophilus Worlhof embraced the opinion of Stahl; and Astruc, if he did not adopt it, which in a man so unfortunate in his physiological as well as pathological reasoning is rather astonishing, did not however absolutely reject it.

However considerable might have been at that time the number of partisans to the theory of disguised venereal diseases, which naturally arose from the adoption of a syphilitic virus, it was more especially towards the year 1740, that it became universally adopted, and systematically arranged. John Hermann Fursteneau went so far as to believe all hysterical affections to depend on a venereal virus

* Some modern authors are of opinion, that when after the healing of a chancre their remains some hardness, which sometimes ulcerates, it is a proof that there still exists some remnant of virus in the system, and consequently that the cure is not complete—these symptoms are, however, insignificant, and easily yield to astringent washes.

either concealed or forced into the system by an ill-directed treatment. Having failed in curing an inflammation which appeared on two fingers of a child, he concluded that the body of the little patient contained a latent syphilitic virus, and was confirmed in this belief by the fact that the mother had died phthisical, and the father had led a dissolute life. Rudiger Frederic Ovelgun did not reason very differently from Furstenam. John Michael Gallo also thought that hysteria often puts on a venereal character, because he cured a woman of hysterical vapours, by the administration of the muriat of mercury, which brought on a profuse salivation. John Philip Burggraaf gives the dissection of a child who died of rachitis, which disease he attributes to a blennorrhagia *under which the father when young had laboured*. In like manner, John Rauschert attributes to an hereditary venereal disease, or one transmitted during conception, a caries of the bones, of which he relates a curious example. Anthony Agostini believing on the authority of his predecessors, that the venereal virus may remain latent in the system even for a number of years without manifesting its presence, explains the venereal pains, which tormented a nun forty years of age, by supposing her *to have received the infection from her nurse*, since the austerity of the monastical life did not permit him to suspect any other source to the disease. But we should never end did we enumerate all the anecdotes of this kind that may be found in medical writing, and the collection of which would prove the most severe sarcasm that could be raised against medicine, did not the enlightened and philosophical man know that truth is forever surrounded with ridiculous errors, as if the surrounding clouds that conceal it from our view were not already of sufficient density.

ART. X. *An Account of Dr. Broussais's Doctrine of Fevers.*

By JOSEPH G. NANGREDE, M. D.

THE periodical journals of Great Britain, and several of those of the continent of Europe, are filled with arguments for and against, a new system in medicine, which has issued from the French school. As the views lately promulgated are ingenious, and supported by very respectable authority, I have thought that it might not be uninteresting to lay before the American reader, a concise account of the theory of fever of this distinguished writer; reserving, perhaps, for a subsequent communication, some other parts of his doctrine.

In the long list of afflictions to which the human system is liable, there are none which have so often abstracted the attention of medical men, as the various forms of fever. Ever since medicine had the rank of a science, this very formidable class of diseases has been the source of discussions and investigations as boundless, as vague and illusory. If we consult the history of medicine, even at its remotest periods, it will be found that each century gave rise to new doctrines, each promulgated with the plausible intention of explaining obscure phenomena, and adding to our mass of information; but neither of which, notwithstanding the authority of profound erudition and great names, have as yet dispelled the cloud that hangs over this intricate subject. Unfortunately for humanity, no other series of affections affords so extensive a range for speculation: unfortunately, because with such a field before them, many have leaped into the arena, with no other weapons for scientific controversy, save those furnished by a brilliant imagination, or a fertile genius. Disdaining the treasures of pathological anatomy, as well as the inferences of clinical medicine, these medical theorists have erected their different edifices on the various explanations they have thought proper to adopt of the laws of animal economy. Can it be wondered, then,

that composed of such materials, each successive creation of fancy should have vanished before its short-lived successor, and that almost every different portion of the old world should have maintained its own theory against the opinions of its neighbours. It is thus that the doctrine of fevers, instead of being grounded on certain and well established facts, remains to the present day, a never failing subject of endless disquisitions.

Discouraging as this view may appear upon a superficial examination, we are not left without some hopes that the age of uncertainty is passed, and that in the progressive improvements which the physical sciences are constantly undergoing, that of medicine is also destined to partake in some degree. Until within a few years past, the diversified origin of febrile action has been universally admitted ; and whether the doctrines of Brown, or Cullen, or more latterly, those of the celebrated Pinel, swayed the medical sceptre, the partisans of the different sects were united in that belief. But in adapting that origin to the different views of fever, does not candour require the admission, that it has so often been obscured by collateral circumstances, made to suit the views of sectarians, that an impartial mind, in its search after truth, finds a correct discrimination no easy task ? Notwithstanding all the labours which its obscurity has elicited, the nature of fever may still be considered a chimerical being—at least such is the impression of the advocates of a different view from that generally adopted. So difficult has it been found to define fever, that the attempt is not even made ; and a brilliant and fanciful system, is presented without even the form of a definition of the disease. And, perhaps, to a certain extent, the authors of these systems are not unjustifiable ; for considering, as they have done, the nature of fever beyond their reach, they have preferred describing what they have seen and observed, to indefinite speculations.

Be that nature what it may, it will advance the cause of medicine to collect with care, and to analyze with the closest scrutiny, whatever facts are presented to our observa-

tion. Skepticism in relation to the inferences to be drawn from facts, can alone ensure the foundation of any medical theory. The true character of fever will always be developed by searching for its probable source, before any other considerations take possession of our attention. That a local origin will finally be acknowledged as the only cause of all fevers, is a position which now appears to occupy the medical world : but like all other opinions which are in opposition to the passions and the interests of a portion of mankind, it meets with resistance or support according as they predominate. It is far from my intention, however, to deny, that many of those actively engaged in this discussion, are acting from the firmest principles of conviction, in the search after truth, not victory.

A doctrine entirely subversive of all those which have prevailed, and one which blots out of the nosological chart those diseases hitherto denominated primitive, could not fail of exciting numerous criticisms and unbounded animadversions. The reputed author of these opinions, is Dr. Broussais, a Professor of the Military Hospital of Instruction in Paris. Possessed of a vast fund of information, acquired by a long series of practice in almost every climate of Europe, while attached to the French armies, this gentleman published in the year 1808, a *History of Phlegmasiæ or Chronical Inflammations*, which has served as the ground work of his doctrine, more recently presented to the public, under the title of *Examination of the Medical Doctrine*, generally adopted. Before I proceed further in the elucidation of these views, it becomes interesting to state, that some doubts exist whether they are wholly, or, in other words, originally, those of Dr. Broussais ; and, upon inquiry, it will be found, that opinions somewhat similar to those he advocates, are of a much older date than our own century. Thus Van Helmont believed, long since, that irritation was the cause of a great many diseases. He is the author of the ingenious simile between an inflamed part and an organ wounded by a thorn, a comparison subsequently illustrated by Vicq D'Azir. Many contend that the ideas

of Van Helmont have served as the basis of the modern theory of phlegmasiæ, and have thus furnished several elements of a doctrine entirely grounded on irritation.

At a later period, Senac, in his excellent treatise on fevers, in the chapter wherein he treats of its causes, observes, that "there are arguments not without weight, which tend to prove that the febrile cause is principally confined to some particular organ, or at least there is some part to which its action is more immediately directed and confined, and which is therefore a greater sufferer in consequence of that action."

The works of Chirac, of Sylva, of Marcus, and more especially of Chaffin, abound in expressions of doubt in relation to the essence of fever. The latter author, in his observations on fever, says, "This affection, which all authors have considered as general, is, according to me, a very local affection." And in another part of his work on the nature of fevers, he adds, "All fevers are to be referred to local lesions, of which fever is only a symptom."

Views nearly assimilated to those I have just referred to, belong to the medical creed of Professors Chapman and Caldwell, and have frequently been promulgated in their lectures. The Elements of Therapeutics of the former gentleman, afford evidence of his belief on this subject.

The names and quotations herein alluded to, have been produced as much from a feeling of justice to those authors, as from a desire to prove, that whatever be the claims of Dr. Broussais to originality of ideas, those ideas have been entertained by other men whose pretensions to our respect are well founded. Even admitting that his claims to priority are not tenable, no where shall we find the inferences he has drawn, his complete history of phlegmasiæ, or his theory. But what constitutes the principal merit of Dr. Broussais, and which no one will dispute, are his numerous post mortem examinations, upon which is grounded the basis of his doctrine.

Irritation then being the pivot on which the modern doctrine of fevers rests, it becomes us to convey, as clearly as

possible, the idea which is attached to it by the author. By irritation is meant that state of an organ wherein excitement has attained such a degree of intensity, that the equilibrium resulting from the balance of all the functions of the system, is completely destroyed. The moment that a focus of irritation, either acute or chronic, exists in the system, the healthy organs are disposed to take on similar action, as soon as a stimulating cause acts upon them with sufficient energy. In consequence of the sympathy of the heart with the irritated spot, a reaction of the circulatory system, or fever, is the result. Irritation may be termed the first grade of inflammation, yet it may occur without inflammation; if, on the contrary, the irritation is continued a sufficient length of time, and acts upon the capillary system, inflammation will in most cases be witnessed.

Our author finally observes, that all local exaltation of the organic motions sufficient to disturb the harmony of the functions, and to alter (*désorganiser*) the texture wherein it is seated, is to be considered as inflammation.

The seat of this irritation is the next subject that will excite our inquiry. Dr. Broussais places it in the mucous membrane of the digestive canal. It must be conceded, that our notions on the pathology of this important order of membranes, had been very limited until the appearance of Bichat, who first called the attention of the profession to the various alterations of which they are susceptible. He appears to have almost anticipated the subsequent labours of Broussais, when he says in his *Anatomie Generale*, that "there are few systems of the animal economy more deserving the attention of the physician, on account of the innumerable alterations it may undergo, and of the simultaneous changes experienced by the vital properties so eminently predominating in those membranes."

There are many remarkable analogies between the phlegmasiæ of the mucous membranes. In the first place, no texture of the human system is oftener the seat of inflammation, than this order of membranes; but the different parts which compose it, are not equally accessible to irrita-

ting causes. Thus the inner surface of the lungs, as well as that of the digestive canal, are much more susceptible of inflammation, than the internal coat of the ear, the larynx, or the urethra. Secondly, it appears that they are more liable than the serous membranes, to that degree or species of inflammation which does not extend to contiguous textures; and that may perhaps be accounted for by the fact, that the latter are generally more remote from the operations of the different stimuli, while they are usually in direct contact with the former. Thirdly, the constant exposure of these membranes in the lungs, to the influence of every noxious principle floating in the air; and in the alimentary canal, to that of every substance destined to reach the stomach for digestion,—are circumstances highly favourable to the very frequent production of phlegmasia. That they do exist much oftener than we have hitherto been aware of, is already admitted; and this fact is due to the investigations of Broussais.

Consistent with these notions of the influence which the mucous system is called to exercise on the animal economy, and which we consider grounded on the most rational observations of morbid anatomy, it will follow, according to our author's views of disease, that all febrile action is secondary, or symptomatic. Every form under which fever may invade the human system, can be traced to a local principle. Thus those diseases hitherto called inflammatory, bilious, nervous, typhus, &c. are to be considered in future only as different grades of phlegmasiæ of the digestive canal, modified into each particular train of symptoms by temperament, idiosyncracies, climate, situation, season, &c. &c. In order to explain his views of the essence of fever, Dr. Broussais supposes a given number of individuals, who shall all be submitted to the action of a cause capable of producing fever. Thus, they shall experience the influence of a cold damp air, or they may be wet either by rain, or by falling into the water. In consequence of such exposure, one of these individuals will be attacked with what is termed inflammatory fever; a second with gastric

fever; a third, with remittent fever, &c. &c. What will the difference be between these individuals—they will all be under febrile action, but each of a different grade, because each temperament, idiosyncrasy, &c. is different from those of his neighbour.

In the first individual, the application of cold will produce a determination from the circumference to the centre, the vital powers, and the blood, will be forced to the vicinity of the larger viscera; organic action will be excited in all the viscera, but more especially, through the immense extent of the mucous membrane of the pulmonary and gastric systems. This determination will be followed by a movement of expansion accompanied with fever, the duration of which may be twelve hours, twenty-four hours, or seven or nine days,—according as the concentration has produced a greater or a lesser degree of irritation in the principal viscera. Finally, this irritation will vanish with an impetuous restoration of the secretions, or by a hemorrhage, and the patient will be cured. This is inflammatory fever: it may also be the result of an irritation of the viscera, gradually occasioned by all those causes which excite the action of the blood-vessels, and by plethora.

The character of this disease is a general irritation of the viscera, having its particular seat in the mucous membranes, and not in the cellular and serous textures, unless it be secondary. The irritations sometimes extends to the coats of the arteries, as noticed by Frank, and others. If this irritation is promptly removed, the patient is restored to health at once.

When, on the contrary, this irritation becomes concentrated towards one particular organ or system, the fever which so far may be termed simple, inasmuch as it resulted from a general phlegmasiæ of the viscera, degenerates into a local phlegmasiæ. This particular stage of disease which is termed raptus, is noticed by authors, but their references have generally been made to the chest or cranium, which have usually been considered as the only seats of this determination, whereas the gastric phlegmasiæ which are of more

creasing the general mass of secretions, and by gently evacuating the intestinal canal, they remove from the system a quantum of irritations by no means inconsiderable. And with this expectation active carthartics are more sparingly used, but in the cases where the biliary secretions are vitiated, purgatives are freely recommended. Dr. B. is by no means a partisan of the *methode expectante*; on the contrary, he directs all his efforts towards arresting the course of fever as rapidly as it can be effected.

I have now presented what is conceived to be a general outline of his treatment, such as we have been enabled to collect it from his confused style and obscure phraseology. A more satisfactory one will be obtained by carefully meditating his works which certainly deserve an English translation, and a place in the library of every judicious or ambitious practitioner.

I am perfectly conscious that the views here advocated, are not yet those of the majority of our medical brethren, and though but little doubt exists, that these views will ultimately reign triumphant, still a due respect for the opinions of others which should ever preside in all our investigations, induces me to trespass a few moments longer. These moments shall be employed in a few cursory remarks, explanatory, perhaps, of some part of the preceding observations.

It is asserted by those who are opposed to the dissemination of the new theory, that Dr. B. discerns what no one else can see: that what he calls inflammation is not so called by any other practitioner. To this it may with great truth be replied, that what he calls inflammation after death, is so called by Morgagni, Liecutaud, Portal, Prost, and others. The latter especially, whose work on examinations of dead bodies, deserves to be better known. Though I cannot consider myself bound to defend the particular views Dr. Broussais entertains, respecting the appearances inflammation presents after death, and though I do not regard this as the proper place for even a full exposition of what appears to us a very lucid demonstration of these appearances; yet I

feel myself called upon to protest in a most positive manner, against all inferences from any source but the author's own words. It is my cordial belief that the *ensemble* of his observations are the best commentary of his doctrine.

That a structure so eminently endowed with vital properties as the mucous membrane, richly supplied with capillaries of the most delicate ramifications, and by its situation, as well as its functions constantly exposed to impressions of an irritating nature, should be very susceptible of inflammatory action: is a position not beyond the limits of probability, it is one which is sanctioned by all our information in physiology, as well as pathology. Let us admit for a moment, that organs are much oftener the seat of inflammation than is generally conceded, is it necessary to constitute the disease that the viscus affected, should be agitated by the more violent pains of inflammatory action? May it not be disordered by a state of excitement, subversive of its healthy functions, whence morbid sympathies originating, may be diffused over the whole system? Such a state will be found to exist, the symptoms of which may not be evidently inflammatory, but as nearly as it can approach towards that stage.

The acknowledgment that general or essential fevers do not exist, appears so great an improvement in our nosological views, that as a mere theory, it strikes the mind at once with its importance. Let us, however, apply the doctrine to practical purposes, and select, as the subject of this application, the low remittent fevers usually considered of a typhoid nature. In these cases the predominating symptoms do not evidently suggest the existence of a local engorgement, although they do occasionally denote such lesions; yet post mortem examinations convince us, in these very cases, of the existence of numerous grades of visceral disorganization. But, according to the received opinions, it is heresy to admit these appearances to have been original. They must be secondary, and the result of the disease. Experience however, true in its results, will justify or condemn the reputation of these principles.

The age in which we live has been too frequently accused of fondness for theoretical speculations. We cannot consider the charge as well founded ; and if we apply our remarks to medicine alone, we shall find abundant reason to hope that the reign of medical illusions is passed, and that the profession, which, in our own new country, has not entirely escaped the rage for medical systems, will profit by the experience a few years have afforded. We cannot but believe that when the works of Giannini, Piquer, Pinel, Clutterbuck, Armstrong, Fordyce, Hildenbrault, and a host of writers on fever, perhaps equally deserving, but not yet so conspicuous, are extensively read and meditated, Broussais will not be overlooked, but will receive ample remuneration for the services he has rendered to the cause of truth. We should ever bear in mind, that the noble science we profess, will not allow its votaries to adopt any creed which cannot bear the analysis of observation and experience.—*Opinimum commenta delet dies naturæ judiciæ confirmat.*

ART. X. *Observations on the Cause, Character, and Treatment of the Intermittent Fever, as it appeared in the neighbourhood of the Schuylkill, in the Autumns of 1820 and 1821.*
By WILLIAM HARRIS, M. D. (*Read before the Academy of Medicine of Philadelphia.*)

IT is a well established fact, that marsh miasmata and the vicissitudes of weather combined, produce intermittent fever. But why this peculiar effluvium prevails in comparatively few seasons, is a subject worthy our most serious attention. Nor is it less important that we become better acquainted with its chemical qualities.

The result of my observations and enquiries is, that intermittents prevail only in seasons when the waters are unusually low. This being the case, many pools, formed by sand bars, which are usually overflowed, now become stagnated, and acquire a putrefactive tendency.

The fish, either from want of a sufficient quantity of their natural element, or because that element is very impure, sicken and die in large numbers. In this state they float down the river until obstructed by some rock or sand bar, or are washed upon the shore, and here they putrefy, and consequently corrupt the water and the air.* To these two causes may be added the putrefaction of vegetable matter. It is well known that timber rots under water very slowly, if at all: but after long submersion, should it be exposed to the rays of a hot sun, putrefaction advances rapidly. During the autumns of 1820 and '21 the waters of the Schuylkill were at least two feet lower than usual, and consequently, a large number of logs and stumps, which had long been buried in the river, were exposed, together with much vegetable matter, near the shore, and putrefying, became accessory in producing noxious miasmata.

Fœtid exhalations thus arising, contaminate the atmosphere, and are carried by the passing winds over a considerable extent of country.—We had intermittents the last sea-

* I have often been surprised, when crossing the river, to see the large quantities of dead fish, which were continually floating down with the torrent: and once, while passing over, accompanied by a neighbour, I called his attention to this circumstance—when he remarked that he had seen, a few days before, about a bushel of dead suckers, lying together on the shore, at a bend of the river. And, indeed, I have learned, upon inquiry, that large quantities of dead fish are in all the rivers, during the seasons in which the ague pervades their adjacent country. For the following corroborative narrative, I am indebted to my intelligent neighbour, Mr. Morgan. "In the fall of 1819," said he, "I visited Mrs. Morgan's relations, residing at Peach-Botton, on the western side of the Susquehannah, about three miles above the Maryland line, and was astonished, in crossing the river, to find it so much lower than I had ever before seen it. About one fourth of the stream was entirely stagnated by a sand bar, with the surface covered with river grass, and a green glutinous moss: when the boat, in passing over, disturbed the grass and moss, there arose an almost insupportable stench—and I could discover that the water was literally filled with dead fish, particularly shad and herrings. I found nearly all my friends afflicted with the ague, and that out of seventy-three inhabitants residing at and near the ferry, only three had escaped—while on the eastern side of the river there had not been a single case. This was attributed to the winds, which had been westerly during all the epidemic season.

son ten miles distant from the Schuylkill, and on some of the highest uplands.

The inhabitants on the margin of the river are strongly prejudiced against the *lock navigation*, from a belief that the dams which have lately been erected are the sole cause of the *Schuylkill fever*, as it is generally called. Whether or not their prejudices are well grounded, demands a strict investigation.

That water must necessarily be stagnant to produce the remote cause of intermittent fever, I readily admit. Yet that the dams are in any way instrumental to this effect is at least doubtful. The dams, like rocks in the river, impede its current below, without, however, affecting the surface; for the whole stream is constantly overflowing them, except the small portion which passes down the canals. According to the account of our oldest inhabitants, the ague prevailed, as generally as it now does, on the margin of the river, thirty-five years, and fifty years ago, when there were no dams—though it was never known to make its appearance before on the uplands, nor to assume so malignant a character. Thus the sick were able to attend to their daily avocations, even during the paroxysms of the disease—but, now, they are confined to bed, and some of them alarmingly ill. Besides, the intermittent fever, during the autumns of 1820 and '21, prevailed as extensively on the Susquehannah, Ohio, and other rivers, where no dams are erected, as it did on the Schuylkill. In 1820, our epidemic first made its appearance along the margin of the river, about twenty miles from Philadelphia, between Norristown and Pawling's bridge, and attacked almost every family—though in all this distance there were no navigation dams, for the one opposite Norristown, and that at Catfish Island, were carried away by the freshet in the winter of 1819-'20. It afterwards travelled down the river, and next assailed the inhabitants for several miles below Norristown, where the waters were obstructed by the dam opposite Jones's farm: yet I did not find that the disease extended here over a greater distance

of the adjoining country, nor did it assume a more malignant type.

The chemical nature of the marsh miasma is little understood. By some it is maintained, that it is composed of hydrogen united with sulphur, phosphorus, carbon, and nitrogen, in unknown proportions, and in unknown states of combination: while others are of opinion that it consists of myriads of animalcules, generated by the putrefaction of animal and vegetable matter. Whether either of these hypotheses is correct, I pretend not to determine. I am fully convinced, however, that the effluvia which produce intermittent fever are widely different from those which cause yellow fever, since, in the first place, different chemical agents neutralize or destroy them, and, secondly, because the yellow fever prevails in cities, while the intermittent does mostly in the country.

It is indeed clearly ascertained, that our epidemic showed itself much less in the villages on the Schuylkill, Delaware, and Susquehannah rivers, than throughout the country, and in the same ratio, less in the cities than in the villages.—Hence Philadelphia nearly escaped. To what is this to be attributed? May it not be ascribed to the smoke, arising from the chimnies, which either neutralizes the miasm, or counteracts its effect on the system. Two instances which came under my own notice seem to corroborate this hypothesis. A small cottage on the margin of the river, having one apartment only, was inhabited by a large family, which, as often as a fire was kindled on the hearth, was so filled with smoke, that a person of ordinary sensibility could not exist in it. Every individual of this family remained perfectly healthy throughout the whole season, while there was not a family, nor scarcely a member of a family, in its neighbourhood, that escaped the epidemic. Again, a gentleman who burned large quantities of lime, had two tenant houses for his labourers, one about two, the other about twenty rods off the kiln. The family living two rods escaped the epidemic entirely, whereas that residing at the distance of twenty, had four cases. This must be ascribed to the smoke,

for every time the kiln was on fire, the nearer house was not only covered, but filled with smoke.

Though all persons respiring the contaminated atmosphere must necessarily be saturated with the miasm without an exciting cause, it in no instance produces disease. These are numerous, the principal of which is the change of weather. I remarked, that sudden variations of the temperature, as well as humidity, always spread the disease. In 1821 there was a complete drought, which commenced in the latter end of July, and continued until the middle of September, the atmosphere being regularly warm and dry: during which time I had not a single case of intermittent. Two days, however, after the earth had been refreshed with a shower, and the air had become cool, the disease appeared.

Man's body has a capacity for retaining miasmata a length of time, in an entire quiescent state. This singular infection remained dormant in the system of a few persons during the whole epidemic season, and by the aid of an exciting cause, produced the disease after the atmosphere was entirely clear of such impregnations. I attended two patients who had their first attack in December, and it will not be presumed that at this advanced stage of the season, there were any putrid effluvia afloat in the atmosphere.

In several females, parturition was the exciting cause: they continued perfectly well during their whole pregnancy, and were assailed the next day after confinement. But pregnant women did not always escape—the usual exciting causes in some of them, called the disease into action. Any extraordinary exercise of the body acted as an exciting cause.

Why was not every inhabitant, exposed to the same remote and exciting cause, attacked at the same time—Certain idiosyncrasies may have had their influence; though the principal reason is, that their systems were not prepared by the same state of predisposition. This is created by travelling in the night air, by night watching, much anxiety, grief, debility, intemperance, and above all, by a meagre and penurious diet.

third day wore a very malignant character, and terminated fatally on the ninth. In this, as in the preceding case, the intermittent was suffocated under a load of bilious matter, and had the patient lived, would no doubt have showed itself in the sequel.

In 1820, I had about five hundred bilious remittent and intermittent cases, out of which I lost one patient only. This was a male adult, about thirty-five years of age, of an infirm constitution: His disease was a regular tertian ague from the beginning, combined with liver complaint. An entire want of secretion of bile, a torpid state of the bowels, unceasing vigilance, frantic delirium during the exacerbations, and dejection of spirits in the intermissions, were the peculiarities of his case. He died on the eleventh day, in a high state of mental derangement. In 1821, I had more cases than in the former year, out of which I lost a patient, before mentioned, an adult forty years of age, of bilious malignant fever, and an infant about eight months old of intermittent. There was nothing peculiar in the latter case, and the death of the child was very unexpected.

It would perhaps occupy more space than would be allowed me, to enter into a minute detail of my mode of treating this fever. It must therefore suffice to state that my chief reliance was on emetics of tartarized antimony, cathartics of calomel and jalap, diaphoretics of nitre, calomel and tartar emetic, and blisters.

To revert to our intermittent epidemic. I might here occupy pages in describing the various forms in which it appeared, such as the quotidian, the tertian, and the quartan, the double quotidian, the double tertian, the double quartan, and these again tripled. But as such forms are familiar to all practitioners, I shall dispense with the description. I must notice, however, a novel case which had a regular paroxysm every seventh day, for several weeks before the patient consulted me. This I shall call the hebdomidal ague.

The symptoms with which the epidemic was introduced, were debility, disinclination to any kind of exertion, frequent stretchings and yawnings, respiration, in some quick

modes of practice recommended by eminent authorities, and to select, according to my judgment, the best. My experience has afforded me the most conclusive evidence, that our first remedy should, in all cases, be an emetic, unless an advanced stage of pregnancy, or an habitual predisposition to vomiting of blood, forbids it. There was generally a great redundancy of bile, and other acrimonious matter in the alimentary canal. Such accumulations had necessarily considerable effect in aggravating every symptom. Now and then I had the satisfaction to find the disease entirely removed by the means used to cleanse the first passages. By some practitioners the cathartics were preferred. But, in my hands, where there was much nausea, purgatives had no good effect. The stomach indeed generally rejecting them. Besides, I am convinced, that vomiting, particularly with tartar emetic, is often beneficial, independently of its merely cleansing the stomach : in proof of which, sometimes when that viscus was quite clean, nothing being thrown up except the emetic and the water, the patient was at once relieved of many distressing symptoms. I never indeed administered an emetic in the forming stage of the disease, without the sufferer acknowledging its good effect. Emetics, in the hands of some practitioners, have indeed cured intermittents, when all other remedies have failed.* The stomach is connected by sympathy with every part of the body, and hence impression on it, by violent vomiting, is extensively diffused. Copious and universal perspiration was a common effect, which in every kind of fever, is acknowledged beneficial. Generally, I put six grains of tartar emetic in four table spoonsful of water, one of which was given to adults, every half hour until it operated. As soon as it commenced, draughts of warm water were administered to work it off. If the nausea continued twelve hours after the cessation of the vomiting, I directed another emetic, and always with the happiest effect.

In the cases in which I thought emetics inadmissible, or

* See Dr. McLane's case of quartan ague, *Medical Journal*, No. IV. p. 334.

some very superior red bark, of Mr. Charles Marshall, of Market street, than whom no druggist is more celebrated for vending genuine medicines. I now arrived at the summit of my wishes. Every patient whose stomach retained this bark, was speedily relieved. I administered it alone, and combined it with serpentaria, and salt of tartar—the latter mode I greatly prefer. I rubbed together half an ounce of bark, twenty grains of serpentaria, and twenty of salt of tartar, and divided the whole into three doses—one of which, I gave in quotidians, every six hours, and in tertians and quartans, every twelve hours—always administering the first dose in the sweating stage. Three doses, in nineteen times out of twenty, prevented another paroxysm: and when it had not this effect, three other doses always succeeded, unless vomited, or purged off suddenly—in either of which cases, I found laudanum a valuable assistant. Being obliged to abandon it in substance, which I sometimes was, the infusion and decoction were successful. I had a few patients whose stomachs refused bark, by the mouth, in every form. Here I was successful with enemata. Half an ounce of bark, twenty drops of laudanum, and eight ounces of water, administered to adults, per anum, every six hours, during the intermissions, were as efficient as when the bark was taken by the mouth.—A teaspoonful of spirits of turpentine is a valuable addition, in those cases which assume a typhous character. On this mode of treatment, I had principally to rely in the cases of children—their stomachs being generally too irritable to retain the bark. To them I proportioned the above enema, according to their age.

In such cases, I tried various outward applications, and at length succeeded in curing about three out of four, by using red bark, bruised garlic, and warm vinegar, applied to the bottoms of the feet and to the wrists. These applications were removed, and fresh ones applied every twenty-four hours until the cure was effected, which was generally in less than a week. Knowing that the inner and upper parts of the thighs and arms are the most porous sur-

ones continued longer. I accordingly adopted the plan of commencing, in adults, with fifteen drops of Fowler's solution, three times a day, and increasing the dose one drop every day until the fifth or sixth, which always effected a cure, if the medicine was fitted to the case: but where a cure was not completed in that time, I always laid it aside and resorted to other remedies. I prefer the solution to the pill, because the preparation is more convenient, and the dose more precise. I administered it without any regard to evacuations. In the case of the patient which I lost in 1820, I tried the arsenic and the bark separately and combined, and in every form had to regret the insufficiency of the remedy. At that time, had I been acquainted with the superior virtues of the red bark, my patient might have been saved.

In the autumn of 1820, I administered laudanum at the approach of the chilly fit in all cases: from sixty to an hundred drops given at this period, often prevented another paroxysm, and in no instance failed to relieve the patient of much suffering. In 1821, however, I made little use of it, the red bark generally preventing a second paroxysm. The opium became a favourite remedy in domestic practice, and I heard of the speedy cures it was effecting daily in various families.

The *hiera picra* I tried repeatedly and with success. I found it peculiarly serviceable in patients who were addicted to intemperance, and in the epidemic of the winter. It should never be administered to pregnant women. No previous preparation of the system is necessary for its use. The dose in which I gave it was about ten grains three or four times a day.

The *dog-wood* (*cornus florida*) is certainly our most valuable indigenous medicine. It was much used in some families, and was highly esteemed. When I prescribed it myself, I ordered two ounces of the green bark, combined with the same quantity of that of the Spanish oak, to be put into four pints of boiling water, and stewed away to two, and of this a wine-glassful to be given every two or

ing and morning, in most instances with the desired effect. The *hiera picra* I found preferable for patients of intemperate habits: to them I administered a five grain pill of this medicine every evening. For the rheumatic affections and head-aches, which followed our epidemic, sulphur, in efficiency, had no rival in the materia medica. I may finally add, that flannel should be worn next the skin, and that I found a belt, made of flannel and muslin, with bark quilted between, and placed around the body, still more effectual. To this single expedient, which I adopted, during the prevalence of the epidemic, I am disposed mainly to ascribe my entire escape from sickness.

CASES.

ART. XI.—*Case of a very extraordinary affection of the Bowels.* Communicated by R. LA ROCHE, M. D.

DOCTOR W. about 24 years of age, and of a lymphatic or scrophulous temperament, was, during the greater part of the evening of the 4th of October last, occupied in reducing a strangulated hernia, during the operation of which, being confined in a small ill ventilated room, and under the necessity of placing his patient in a warm bath, he became very much overheated and exhausted. Having succeeded in his attempts to relieve the sufferings of the man, and returned the protruded intestine into its natural cavity, he, with rather an imprudent precipitation, changed his dress in a cold room, and from this moment may be dated the commencement of that painful and distressing malady, the history of which I now propose to communicate to the public through the medium of your very useful and valuable journal.

Almost immediately, on changing his apparel, he was affected with uneasiness of the lower extremities, which, how-

he then laboured, I prescribed an opening medicine, together with soda water, to quiet the irritability of his stomach.

On returning at 10 o'clock, I was informed that the medicine, consisting of calomel and rhubarb, had been almost instantaneously vomited, and that much bile had likewise been evacuated. Entertaining still the conviction of the necessity of clearing the intestines of their contents, fifteen grains of calomel, together with powdered ginger, were administered. These, however, were in like manner rejected, and from this moment the pain became more distressing, and the vomiting constant at the same time that the costiveness continued unrelenting. Warm fomentations were now applied to the abdomen, injections of senna tea administered, and to check the vomiting, soda water and other anti-emetic medicines prescribed. The injections being soon voided without bringing away any feculent matter, and the pain continuing unabated, he was bled to the amount of thirty ounces, had a sinapism applied to the epigastric region, and finally took thirty drops of laudanum. This latter medicine having the desired effect, put a stop to the vomiting, and by overcoming the violent spasms of the intestines, facilitated the operation of injections, which, for the removal of the remaining pain, were now ordered. In this way a copious stool, consisting of highly offensive liquid feculent matter, was procured, which afforded the patient an almost immediate relief, and he soon went to sleep.

At half past six the next morning (October 7) I saw him: was informed, that he had suffered much from cramps in the lower extremities—but that these soon subsiding, had permitted him to pass a good night—that he felt well, and to make use of his own words, “was quite himself again”—his sickness of stomach had completely disappeared, and with the exception of a slight soreness of the belly, which was thought, even by himself, to depend on the violent vomiting of the preceding day, he could be considered free from active disease, and in a state of convalescence. The want of a passage, however, during the course of the night,

372 *La Roche's Case of an Affection of the Bowels.*

together with the remaining pain, induced me to prescribe some calomel, fifteen grains of which medicine were consequently soon administered and easily retained on the stomach—and having ordered an ounce of the sulphate of magnesia, to be given in a few hours, in case the former did not operate, I left him, with the hope, that by these means plentiful purging would be procured, and thus an end put to the disease, little suspecting that before the evening of that very day, a scene of almost unheard of sufferings was to be presented before me.

On returning at one o'clock, I learned that a message had been sent to me—that the patient, feeling himself well, had left his bed to walk in his parlour—that the salts, as directed, had been taken, but immediately puked up, and that from this time the vomiting had continued, and the pain become as violent as the day before. Recourse was again had to injections, though to no purpose—they returned as they had been given, and without carrying with them any feculent matter, and so far from affording ease, seemed on the contrary to aggravate his sufferings, by causing the most severe straining and griping. At three o'clock, finding that no benefit could be derived from these medicines—that the pain was now so excruciating as to be almost insupportable—that the pulse, which had become quick, was still hard and corded—that the abdomen was more sensible to the touch, and that, from all appearances, the disease was assuming a character the most serious and dangerous, I requested that Dr. Monges should be called in. He was accordingly sent for, and after a careful examination of the patient, it was agreed that bleeding should again be resorted to—warm fomentations applied to the abdomen, and turpentine injections thrown up the rectum to promote the operation of the calomel. The bleeding, which was carried to the amount of twenty ounces, produced some alleviation from pain; but the injections returning, unaccompanied with any fecal matter, caused no relief, and were repeated with no better success. At nine o'clock, the symptoms continuing the same, and the costiveness still

obstinate, twenty ounces more of blood were drawn, which caused some vomiting, and brought on a state approaching to syncope. The warm applications were renewed, and the effervescent draught prescribed; but this last being almost immediately vomited, was changed for cold lemonade. He remained in a state of comparative ease, until about four o'clock the next morning, (Oct. 8th) when the pain returning, and the abdomen continuing sore to the touch, one hundred and twenty leeches were applied, and produced a very speedy relief. Small and repeated doses of calcined magnesia were now given and retained, and it was hoped that by its means the bowels would be moved, and a termination put to the most distressing symptoms. But here again we were disappointed. The violent spasmodic pains returned—the pulse acquired fresh energy, and it was consequently determined, at eight o'clock, in consultation with Drs. Monges and Dewees, whose attendance had now been requested, that bleeding should be pushed ad deliquium. This was accordingly performed, and to our great satisfaction, the bowels, during the complete state of syncope, gave way spontaneously, and a copious feculent stool was passed, producing an almost immediate abatement of the pain. To promote the alvine evacuations, small doses of magnesia and epsom salts were next ordered to be repeated at short intervals, which, by bed-time, procured another copious passage.

The movement occasioned by his getting up, together with the state of great debility under which he was then labouring, brought on again complete syncope: he was put to bed, allowed thin sago during the night, and after enjoying refreshing sleep, was found the next morning free from all those symptoms that had been with so much difficulty combated.

From this moment, his bowels remaining open, and his pain and fever having totally disappeared, he was considered out of danger; permitted some nourishment, and continued in a state of supposed convalescence until Friday, Oct. 12th, when he again complained of slight griping,

374 *La Roches' Case of an Affection of the Bowels.*

which was removed by drinking a cup of warm tea. The pain returning in the course of the day, he, supposing it to arise from flatulency, very imprudently endeavoured again to remove it by taking some warm chicken water. It continued, nevertheless, until four o'clock, P. M. when I saw him, and suggested the necessity of opening his bowels by means of castor oil, (for he had not had a passage since the day before.) This medicine he refused to take, fearing that his stomach, from its former irritability, would not retain it; but consented to the administration of some milder laxative, and of stimulating injections. Finding, on returning at nine o'clock, that these remedies had produced no stool, and that the pain still continued to recur at intervals, accompanied with considerable borborygma, I again advised him to take a purgative medicine, which was, as before, refused. I consequently left him, with a request to drink freely of warm chamomile tea, and to apply hot flannels to his abdomen.

At five o'clock the next morning, (Oct. 13) I was sent for and informed, that the griping, though not constant, had caused him much distress at intervals. I found him with his feet immersed in warm water—perspiring freely, and with a mitigation of pain, although his bowels had not been opened. At seven the pain returning—the abdomen being sore to the touch, and the pulse active, leeches to the number of 100 were applied, and one ounce of epsom salts administered—which last was retained, whilst the former, at the same time that they produced much relief of pain, likewise effected a reduction in the strength and frequency of the pulse. In this state he continued until about twelve o'clock, when the griping returning with redoubled violence, and accompanied with increased force and quickness of pulse, he was bled to nearly thirty ounces, and directed to continue the salts in divided doses until they should operate on the bowels.

From the bleeding, which brought on a state approaching to syncope, relief was obtained. But this being only momentary, and soon succeeded by a fresh exacerbation of

spasmodic pain of the intestines, an injection of laudanum was directed to be given, with the twofold intention, of relieving the griping, and by removing the spasm, to facilitate the operation of the medicine. The first of these intentions was accomplished, and the pain allayed until six o'clock the next morning. Notwithstanding, however, that stimulating injections were had recourse to, and that nearly three ounces of salts had been administered, together with about one pint of strong senna tea, no stool was passed during the whole course of the night. At six o'clock, A. M. as I have just mentioned, the griping pains returned, but as they were slight and thought to be the precursors of alvine evacuations, no attempts were made to relieve them. At eight the pain still continuing, the umbilical region being sore to the touch, and the pulse strong—twenty-five ounces more of blood were drawn from the arm, and a large blister applied to the abdomen. By these means, and notwithstanding that the constipation remained still obstinate, our patient continued in a state of comparative ease, and complained of little else than his blister until about seven o'clock in the evening, when he was almost suddenly attacked with agonizing and distressing pain, which continued so long, and became so excruciating, that death was momentarily expected by him and his friends, of whom he took leave. The weakness of the pulse precluding the farther use of the lancet, he was ordered an injection of strong senna tea, which although it soon came away without bringing with it any thing, procured him a momentary respite from his sufferings—his blister was next dressed—it had drawn considerably, but was pale in its appearance. At nine o'clock, P. M. sweet oil in large quantities was ordered to be given by the mouth, with a view of overcoming, by its purgative effects, the constriction, at the same time that, by its lubricating qualities, it would tend to sooth the violent irritation of the intestines; but owing to its nauseating the stomach, it was soon discontinued, and about ten o'clock it was agreed, in consultation, that a pill,

such forcing and bearing down pain, as to cause the patient to scream, and to necessitate the administration of laudanum injections. It was confidently hoped, that a relaxation of the spasm, procured by means of the anodyne, would facilitate the operation of the calomel—but all in vain—the pain was momentarily relieved, while the costiveness still obstinately continued. At about 7 o'clock P. M. he experienced another most excruciating paroxysm of griping and straining; injections with castor oil were now had recourse to, which at length produced a stool containing some feculent matter. As this, however, afforded no mitigation of the pain, the injections, at his own desire, were repeated; but, owing to the excessive irritability of the rectum, produced by their frequent exhibition, were almost immediately returned. In this deplorable condition he remained until about ten o'clock, when the anodyne was repeated, which afforded some respite to his sufferings, induced a small evacuation of fecal matter, and was soon followed, though without advantage, by purgative enemata. His pulse was now from 130 to 140—his feet and hands alternately cold and warm, and he frequently complained of losing strength rapidly. At midnight, the pain being violent and spasmodic, an injection containing two drachms of laudanum and a strong solution of assafœtida, was given, which brought away some feculent matter, together with large quantities of membranous particles, some of considerable size, and resembling in all respects, the living membrane of his intestines.

The pain continued to be very severe until about one o'clock A. M. when it suddenly subsided; the pulse sunk and acquired velocity; the wrists and ankles became cold, hiccups troublesome, and soon followed by vomiting of a dark brown matter, having the appearances of excrement dissolved in the mucus of the stomach; the tongue assumed a dark colour; in fact all the symptoms of present or approaching gangrene were now apparent. The calomel, of which he had taken about seventy grains, was discontinued; his extremities were rubbed with spirit of turpentine and the tincture of cantharides, and sinapisms applied to his

feet—clove tea administered for his vomiting—and soon finding that his debility was evidently gaining ground, the volatile julep was had recourse to. These medicines being vomited, he soon lost the power of speech, and appeared to be dying—the pulse became tremulous and low—breath cold, and his forehead covered with clammy perspiration. Now it was, that appreciating his situation, our patient made an effort, apparently the last, and took leave of his friends and family; and indeed, from the distressing nature of all the symptoms that now presented themselves, it was naturally to be expected, that his remaining life could be of but short duration.

At 8 o'clock A. M. his physicians unanimously declared, that death was fast approaching, and for the purpose merely of relieving the agitation of his body, and the irritability of his stomach, ordered the exhibition of an anodyne injection. At this period his bowels gave way, and losing all command of the sphincters ani and vesicæ, he passed involuntary stools, composed of dark and extremely offensive matter, resembling in colour the washings of putrid flesh, and in smell, that sickening and peculiar cadaverous odour, so familiar to those employed in dissecting rooms. During the course of this day, death being momentarily expected, and his stomach, from its great irritability, rendered inadequate to the retention of medicine, nothing was attempted to be administered—his face became of a deadly coldness, covered with clammy sweat, and presented the well known features of the facies Hippocratica. It is to be remarked, however, that though, during the whole of Tuesday, October 16, he could with propriety be pronounced almost in articulo mortis, his respiration did not correspond with the velocity of his pulse, but continued not much more frequent than in health; and that his nails and lips did not present the livid appearance so usually met with on similar occasions.

On the Tuesday night he took absolutely nothing—he lay in apparent sleep, retaining however a perfect knowledge of what was going on around him; seemed to breathe with some difficulty, and wished the windows to be thrown open

to admit a free circulation of cool air. His mouth and lips being very dry, as well as his tongue, which was moreover rough and covered with a substance of a dark mahogany colour, caused him much uneasiness, and a frequent desire to wet them with iced water—his hands, arms, feet, legs, and likewise his nose, chin and cheeks, remained in the same cold state in which they were found the day preceding, and his pulse was often so frequent as to be a mere oscillation, counting at least 150-60 in a minute, and even perhaps 180; but so extremely irregular was it, that it only beat sometimes 90 or 95, and was firm and steady. The vomiting continued obstinate, and the involuntary stools passed off frequently.

Early on Wednesday morning, his system seemed, in some degree, to react; his hands and feet being warmed by the kind and assiduous attention of his friends, remained so; his pulse was firm, and already twenty-five or thirty pulsations slower than the evening before; his face, besides being warm, presented an appearance much more natural, and was no longer covered with cold sweat. His stomach, however, continuing very irritable, and refusing to retain any thing, and, moreover, as nature had shown herself disposed to come to his assistance, nothing, except perhaps a few drops of iced water, was administered by the mouth; and some attempts, made in the evening, to throw in nourishment by means of injections of arrow-root and broth, were soon abandoned—since by the copious evacuations, which still continued to pass, and were now found to contain a large proportion of serous fluid, having the appearance and smell of that observed in mortification of other parts of the body, they were instantly discharged. During the whole of the Wednesday night he was very restless; moved and tossed about in his bed; asked continually for water to relieve the dryness of his mouth; and about midnight became evidently delirious; vomited sometimes, and hiccupped almost constantly.

On Thursday morning, Oct. 18, he seemed better; his pulse was slower and firmer; his countenance was more na-

lirium—passed a few natural fluid stools, together with a great deal of water, and on Saturday morning, October 20, was found to be doing well. His pulse was still strong and quick, though perhaps less so than the evening before; his bowels were open, free from pain, and the vomiting having completely ceased, he was ordered to take gruel and tapioca for nourishment, together with lemonade for common drink. Towards evening, he appeared much better, continued so all night, and the next morning was permitted to eat the soft part of a few oysters.

Our patient remained without pain, and in a state of progressive improvement, until three o'clock on Monday morning, October 22, when not having had a passage since the day before, he was again attacked with severe griping, which, after it had continued about one hour, was relieved by a free discharge of fluid feculent matter. It is to be remarked, that although drinking very little, he passed from Thursday evening to Monday, and even on some of the following days, a prodigious quantity of limpid urine, which probably greatly contributed to the reduction of his pulse. In the course of Monday, he complained of considerable irritation about the anus, called frequently for the pan, without however being able to void much matter, and on examination, the hemorrhoidal veins were found very much enlarged. On Monday night he was again affected with much griping, and relieved by the discharge of a large quantity of fluid fæces, now mixed with portions of solid matter. Warm fomentations were applied to the abdomen; towards the morning of the ensuing day, oily and mucilaginous injections thrown up the rectum, and attempts made to open the bowels by means of Epsom salts. But these remedies were of no avail; the injections were instantaneously voided, causing at the same time a return of the pain, and the salts, though given in small doses at long intervals, were, after producing considerable distress, finally vomited. Another injection being soon after administered, was retained upwards of an hour, and seemed to produce so considerable an alleviation to his sufferings, as to allow him to enjoy some

REVIEWS.

ART. XII. *Rapport fait au Conseil General des Hospices, par un de ses membres, sur l'état des hopitaux, des hospices, et des secours a domicile, a Paris, depuis le 1er Janvier 1804, jusqu'au 1er Janvier 1814.* A Paris. Madame Huzard, 1816. 4to. pp. 391.

Compte rendu par le Conseil General des Hopitaux et Hospices civils de Paris, du service de ses Etablissements, pendant le 1er Semestre de 1814, et jusqu'au 1er Janvier 1815 ; et de l'emploi des dons faits par les habitans de Paris. A Paris. Madame Huzard. 1815. pp. 75.

ONE of the greatest wonders, and certainly the greatest glory which accompanied the meteor reign of Napoleon, was the unrivalled perfection and excellence of the scientific and philanthropic institutions of his empire, during the existence of the most destructive war. Whilst the thunders of her anger carried ruin and desolation over the adjoining realms, the capital of France was the seat in which every science and every art received an unremitted patronage, and was, in most instances, elevated to a height fit to serve for examples to the civilized world.

Correspondently to the genius of her authors, the profundity of her philosophers, the ingenuity of her artisans, and the science and skill of her physicians, we must naturally expect a view of her hospitals to afford like patterns of excellence.

It is but recently that these volumes have fallen under our personal inspection, through the politeness of a distinguished citizen, but as we do not recollect an account of them to have been inserted in any journal in our language, excepting a transient allusion to them in the Edinburgh Review, we have thought them as interesting to the American reader, as they are undoubtedly valuable. At this period,

particularly, when a large increase and new regulation of these institutions is wanting in the United States, and when the subject is before Congress,* it is peculiarly appropriate to know what has been done in relation to them in another country.

It is impossible to furnish an abstract of the work before us, within the ordinary bounds of a review. We shall present as much as our space will allow, although sensible that we are omitting much matter of interest to our readers.

At the time of the revolution, Paris contained no less than forty-eight distinct establishments, of which twenty-two were destined exclusively for sick, twenty for persons in health, and six for both; besides several Magdalen asylums. About twenty thousand persons were thus protected, every day, exclusive of foundlings, who, enumerating all that had not yet attained manhood, amounted to fifteen thousand more. This truly astonishing number, however, must be understood to contain those who, though able to procure their own livelihood, still continued under the care of the institutions in which they had been placed. Of the hospitals, six were for men, four for women, six for both sexes, and six for incurables, or for particular and specified diseases. Of the twenty alms-houses, two were for old men, three for widows, two for strangers, two for children, and eleven for foundlings and orphans. This noble and beneficent provision for distress had been made at different times and by various persons, and of course, without the lights which might have been obtained by a general board of superintendence. Thus, although there was a hospital for incurable blind, there was none for restoring the sight; and further succours were much wanted for inoculation, for madness, and for contagious diseases. The shocking state in which many of the institutions were found, arising from an excessive number of patients is well known. We here learn, further, that there were no wards whatever, devoted to surgical operations, nor any infirmaries in the

* Vide the motion of C. Colden, of New-York, relative to providing for sick seamen.

almshouses ; so that the patient who fell sick in the Bicêtre was sent to the Hôtel Dieu.

Patients affected with fevers, with wounds, with contagious diseases, with epilepsy, and with madness, convalescents and pregnant women, were contained in wards, placed one above or beside the other.

The property devoted to the support of these institutions before the revolution, amounted to seven or eight *millions*, we presume, of livres. All was sold by order of one of the revolutionary governments, on pretence that "assistance of the poor is a national debt," an act which our reporter characterizes as being on the part of the legislators, "*une grande derision de leurs propres principes.*"

Louis XII. established a general board of pauperism, composed of the first magistrates of the city, and of distinguished citizens. Their administration was called the "*regime paternel.*" Those who were first charged with it were enlightened and charitable ; but many of those who succeeded them were less so. Confusion and disagreement in the board, want of accountability for money, and the disgrace into which they fell, at length, introduced such a state of neglect into the hospitals, that they were committed to the care of five companies of contractors. These persons were needy, and both complained, and were complained of ; and the government did not fulfil its own share of the contracts. A proposition was at length made by the prefect of the Seine, the count Frochot, and accepted by the government, by which a general board of paupers was again established ; and a general council of hospitals, and an administrative commission, connected with it. In April, 1801, the care of the domestic succours afforded the poor was placed under the same direction. This body continued the contracts for eighteen months, to terminate in September, 1803 ; reserving, however, the Salpêtrière and La Charité, under their special superintendance. Their success with these was such as to warrant their undertaking the whole ; and a great part of our volume is occupied with the various improvements which they achieved in the course of a few years.

The sisters of La Charité, a monastic order, were charged with services under the direction of the board. A "*Soup house*," (*marmite des pauvres*) and a dispensary were established in each municipal circle of the city.

Every infirmity and every want, we are now told, meets in Paris, with establishments for its relief. A house is provided for lying-in women, and another for sucking children. If orphans, male or female, they next find a correspondent destination. Another hospital is provided for sick children, from the public institutions and from their own houses. Several general hospitals exist for the reception of adults; and if mental derangement, contagion, or other causes, render it necessary to separate them from others, refuge is afforded them in institutions provided for the purpose. Two hospitals are open for incurables of the two sexes, and two more, in like manner, for old age. In another, old married people are allowed to live together, and finally, in several others, succour is afforded to those whose means are not sufficient for their entire support.

What a beautiful system of benevolence! where no awkward collision of rival institutions, no ignorance, partial views, or partial pecuniary means in those noble-minded individuals who have left Paris such a rich and glorious inheritance, is suffered to prevent the wretch from receiving assistance wasted in other less necessary quarters, and to let him sink to the earth in full view of different establishments, any of which might be able to save him! We hope we are not too enthusiastic, nor too apt to be flattered with novelties and practices different from those to which we are accustomed. We have lived long enough to know how little penetrating is the eye of supervision, and how prone all human institutions are to fall short of their designed and attributed perfection: but we have seen enough in this volume, harmonizing with right reason, to convince us that the greatest utility would be derived, in our great cities, from establishing a general board of pauperism, and sickness, to which all private institutions should be invited to accede, and from which the executive department should

be separated. To arrange and methodize a large system, not only requires very different talents from those which are best suited to the fatigues of administering them ; but, even in the case of similar individuals, the mind which is employed upon subjects of two distinct kinds, generally leaves one of them at a disadvantage, to employ its powers, without interruption, upon the other. Such a board might contain, if necessary, representatives of the different institutions under its care ; and composed, as it probably would be, of the most respectable citizens, serving without hire, would possess the greatest moral influence. By this means, mutual concurrence might be obtained—one establishment would not counteract the efforts of another, dishonest individuals would be prevented from getting, as they now often do, assistance which they conceal, from two or more sources at the same time ; proper cases could be transferred from places less suited to them, to those in which they would be more advantageously provided for, and finally, where deficiencies actually exist, a judicious and well informed tribunal would be able to direct to greater advantage, the future charitable donations and legacies of individuals. We doubt not, that such a body, constituted in our republican manner, and conducted with those feelings with which charities are managed in this city, would be able to achieve all the useful effects that are in the power of despotic rule, even with the aid of the genius that lately directed the councils of the French.

Three principal hospitals were in Paris, at the beginning of the reign of Louis XVI. namely, the Hotel-Dieu, La Charité, and Saint Louis. To these were added, during the reign of that monarch, the hospitals Cochin and Beaujon, and also that of Madame Necker, each bearing the name of its founder. The hôpital Saint Antoine was established in 1795, during the sittings of the national convention. An hospital for sick children (distinguished from the infirmaries (*hospices*) employed for foundlings and orphans) was opened in 1802. To the head of infirmaries are also referred asylums for lunatics and some other complaints, and the

lying-in hospital is also considered together with the establishment for nursing foundlings, with which it is connected, and thus is added to the same general head. The hospital Saint Louis is used for contagious diseases, and that of the Fauxbourg Saint Jacques, for syphilis. Of general hospitals, Hotel-Dieu and La Charité are assigned to the central parts of Paris, and the new erections, mentioned above, to the different suburbs. Such establishments are still wanting for the Fauxbourgs Saint Denis and Saint Martin.

We now proceed to notice some of these institutions more particularly. It is impossible, within the limits assigned to us, to give at all an adequate analysis of the book before us; from the extent of its details, and its statistical nature. All we shall attempt is a general glance at the whole, and an account of a very few particulars calculated, we think, to interest our readers. The council, like a faithful steward, gives up its accounts at great length, for the information of its superiors, the public, and at a length at which the public will not, we think, be very easily induced to read them.

We shall begin with the Hotel-Dieu—that ancient receptacle of misery, placed beside their principal temple by the earliest kings of France, and which has existed upwards of eleven hundred years. Additions were made to it by the president de Bellievre, by Cardinal Duprat, in the reign of Francis I. and, finally, by the great Henry, in 1602.

The ancient state of this celebrated lazar-house has been often described. Crowding the beds together almost beyond endurance, was not a sufficient means of receiving its immense population. Frequently four, and sometimes six patients were laid in the same bed, and it was even contrived to place others upon a mattress laid on a canopy above the heads of the original sufferers, so that access to them required a ladder. The average quantity of air allowed to each individual, was from one and a half to two cubic fathoms; at least three times this space being now thought absolutely necessary. For the poor satisfaction of turning and stretching in bed, there was so far from being room,

that we are told that each forlorn wretch was allowed no more than eight or nine French inches, on an average, to rest in.

What slave-ship could surpass this? Four, and even six sick men in a bed, four feet four inches wide! To this, besides the necessary inconvenience to which the heat, the smell, the motions, complaints and cries, the dying agonies and the delirium among these poor people must have mutually exposed them, was superadded dirt and various kinds of contagion. This was the favourite seat of pestilence—the chosen abode of hospital gangrene. We are not fond of that habit of frequent quotation from poets, in which some late journalists beyond the Atlantic, have indulged themselves; but we cannot here refrain from recollecting the words of a great writer. Dire, indeed,

————— “was the tossing, deep the groans. Despair
“Tended the sick, busiest, from couch to couch;
“And over them triumphant Death his dart
“Shook.”

Nor is it to be supposed that the spectre would long “delay to strike.”

No trace of this shocking state of things, we are told, now remains. The wards are large and well ventilated, and each patient has a comfortable bed. Great pains have been taken to promote cleanliness and health, the *walls white-washed*, the bedsteads painted, and curtains erected throughout. Of this last change we feel much inclined to doubt the utility. Curtains may, possibly, be necessary for European habits, but with American poor, we believe the unwholesomeness of the confined air would more than counterbalance the value of the privacy which they would afford. Several improvements in the building, the removal of all the patients of certain descriptions to places appropriated to them, and the employment of the hospital La Pitié as an addition to the Hôtel Dieu, have afforded the requisite room for these ameliorations. Some wards, which had become dangerous to their inhabitants from their extreme age, have even been demolished. At the date of the report, (1816) it was intended to remove the whole of this

The average annual expense in this hospital, for ten years, was 551,571 francs 48 centimes, or, in round numbers, 110,000 dollars; a sum surprisingly small. That of the whole of the exclusive hospitals (*hospitaux*) of Paris, was 2,329,954 francs 97 centimes, or about 466,000 dollars.

La Pitié is an old orphan asylum, which it was thought necessary to open, in 1809, to receive the patients expelled from the Hôtel-Dieu, by the modern reformation; and the prior inhabitants of which were placed under the same roof with those of the other sex. The average number in a year has been 2037, at an expense of 112,285 francs 80 centimes, or little more than 22,000 dollars. At this expenditure, all the patients are furnished with clothes, as is done in the other hospitals, during their stay there. The principal part of the nursing is performed by the religious order of *Sœurs Hospitalières*, those pious nuns, who believe that the best manner in which they can evince their love for their Creator, is by devoting themselves to relieving the miseries of their fellow creatures. How much more consonant with reason and our nature, than the seclusion practised by others; and how much more productive of happiness in the benevolent labourers themselves!

We cannot now be permitted to treat particularly of the remaining hospitals mentioned above. We are fatigued with the very enumeration of nuisances, many of them shocking to humanity, the merit of removing which is claimed by the board who furnish the account before us. The antiquity of the buildings was the cause of many of them, and they appear to have consumed as little good sense in their superintendence as the ancient government itself.

The hospital for sick children has averaged two thousand and sixty-seven patients per annum. The conductors are stated to experience a difficulty much complained of in the children's asylum of this city, namely: a disposition on the part of parents to misrepresent their children's ages, for the purpose of obtaining admittance for those who are not entitled to it. The mortality is one in 4.37; not differing greatly from that of the Hôtel-Dieu.

vided for in the country, among about four thousand nurses per annum, placed under the care of superintendants, who give certificates of good character, and securities for correct behaviour. A premium is given upon every healthy infant given up by them, at the termination of their cares. At two years of age they are sent to the orphan asylum.

Children weighing less than six pounds rarely live long. The mortality in these institutions has been long known as affording one of the most afflicting views of the lot of man. But when we consider the very large proportion of children that always die at an early age, especially in large towns,* we do not think that thirty-nine thousand three hundred and thirty out of one hundred and nine thousand six hundred and fifty so very large a proportion. Placed, as these forlorn little creatures are, under so many disadvantages, deprived of the nourishment which nature adapts to their necessities, and often sent to this institution for the very reason that they suffered from want, debility, or disease at home, is it wonderful that two-fifths of their number should die in the hospital in two years? This proportion is drawn from twenty-five years, and forms a part of the general neglected and decayed state of the hospitals during most of that period; but under the administration of the council, the mortality in the house was diminished to little more than one-ninth. We are left uninformed of the mortality among the nurses in the country. During several years of the French revolution, the deaths were as high as five-sixths of all that were admitted; a shocking example of the consequences of ill regulation in the care of foundlings.

We have next a full account of the orphan asylum, and of the instruction in reading, writing, arithmetic, and industrious avocations, and of their final location, still subject to the control of the administration, with persons obliged to teach them trades.

* Compare these statements with the observation of Dr. Price, that in London, including private families, more than half the born die under three years of age!

period in life, one hundred and sixty-four, from fevers thirty-two, epilepsy forty-one, palsy sixty-three, hysteria thirty-eight, libertinism sixty-five, drunkenness one hundred and one, politics twenty-seven, *war and the conscription* thirty-five, reverse of fortune one hundred and twenty-seven, domestic chagrin three hundred and forty-three, disappointed love one hundred and sixty-six, exaggerated religion thirty-two, anger thirty-five, fear eighty-nine, unknown seven hundred and ninety-four.

These facts may serve to settle some disputes respecting the ordinary causes of insanity.

Four houses are described, where the inhabiting patients bear a part of their expenses, proportionate to their means.

Provision is made by the council of pauperism, for gratuitous baths for the poor, at the expense of about 1000 dollars (4 à 5 mille francs) per annum. It was originally a condition imposed on the owners of public baths, that twelve of these should be open, at the bridge of the Tuilleries, during every day.

The charities of Paris included, before the revolution, a number of parochial schools, taught by the religious orders; all of which, with one exception, are now abolished. Fifty new seminaries had been opened, in 1813, under direction, and partly at the expense, of the general council of pauperism. At the period of printing the work, 3,281 boys, and 3,526 girls, were instructed in them, at the expense of 42,896 francs for the one, and 37,488 francs for the other; of which 63,660 were paid by the council. Schools are still demanded, in number sufficient, as estimated, to cost 4,200 francs in the first establishment, and 11,400 per annum for their expenses.

A method, ascribed to M. Choron, has met with success in several schools—many scholars having learned to write correctly enough under dictation in six months, and none requiring more than a year. Is this the French edition of the Lancasterian system of mutual instruction? Those children who have not opportunities of education by means of a school in their arrondissement, are allowed a small sum for

from the mayor of her commune, attesting her morality. A physician, attached to the office, examines her state of health and the goodness of her milk, before an infant is entrusted to her care, and also examines the child. The nurses may pass several days in the institution. The child is formally forbidden to be laid in the same bed with the nurse. All these nurses are brought to the office and taken back to their homes by the licensed superintendants, (*meneurs*.) mentioned on a former occasion. Two registers are kept, one arranged by the children's names, the other, by those of the meneurs. Three inspectors are appointed, to examine the state of the children, and rectify abuses. Their care also extends to those orphans who are removed from the city. A summary legal process is instituted, to compel the payment of wages due these nurses.

About two-sevenths of the children thus placed, die within the first year.

Subject to the same general supervision with the above, are, the ordinary establishment of a board of health, a school for midwives, a general bakery, and a great central pharmaceutical establishment. None but the simpler and more obvious preparations are made in the individual hospitals.

Admittance to all these institutions is granted and directed by two physicians and two surgeons, who attend daily at an office for the purpose. This method, although productive of very serious present inconvenience to many patients, has great advantages for the medical profession, and, perhaps, ultimately for the sufferers too. They can by this means be better arranged, and, of course, better attended and provided for. The coacervation of a large number of patients affected with the same complaint, is one of the greatest means of improvement in the practice of medicine; and we understand a physician can procure, by applying at the bureau d'admission, almost any number that occurs of any particular disease to be sent to his own hospital. Hence the immense experience, and the immense number of dissections which many French authors have brought to bear upon the subjects of their works.

Bourdier, Borie, Recamier, L'Herminier, Caillard, Serres.
Surgeons. Pelletan, Dupuytren.

Pitié. Same as Hotel-Dieu, and Chauveau.*

Roule. Chedieu, Bernard.

Enfans malades. Jadelot, Mongenot.

It is not necessary to analyse these sheets any further, except to mention the liberality of the citizens, and the horrors it was destined to encounter.

B. H. C.

ART. XIII. *Practical Observations on Midwifery, with a selection of Cases. Part I.* By JOHN RAMSBOTHAM, M. D. Lecturer on Midwifery, &c. &c. London. Printed for Thomas and George Underwood, 32, Fleet street. 1821.

THE greatest improvements the medical art can claim, are decidedly those which have resulted from experience. Theory has lent but little aid, and it is perhaps a debatable point, whether, on the whole, it has been most useful or injurious. Entertaining such an opinion, we are always happy to meet with a work of a really practical nature. Of this character is the one now before us—and though the author himself lays no high claim to attention, he, in our estimation, richly deserves it. He very modestly declares the work to consist of results “derived from clinical observations,” and it bears every mark that it is truly so. We wish that others, whose talents and opportunities may have afforded equal advantages, would follow his example, and permit the public to profit by their experience, yet we as earnestly deprecate the rage for book making, which has so long afflicted the medical world. Of the writers on midwifery, with which we are constantly deluged by the press, how few are worth preserving from the stream of oblivion. The present one is an exception to the general mass of empty and unprofitable writing on this subject, and for this reason we propose to give our readers an account of its contents.

The work commences with some general and well known details on “Uterine structure, placenta, membranes, waters,

with one remark—and which is of little importance in a general view. It is asserted that the placenta “remains an inert mass during the contractile efforts of the uterus;” nor can it “shrink into a less compass.” This, we think, is not strictly the case. It is known that if we do not apply a ligature to the cut extremity of the cord, it will discharge from one to three ounces of blood—now this evacuation diminishes the bulk of the placenta, and obliges it to contract, which contraction is a stimulus to the uterus, and through its agency, the tonic contraction of that organ is more powerfully induced, and hence the impropriety of tying this portion of the cord.

The remarks “on the occurrences after delivery,” are evidently drawn from the bed-side, and are “true to nature:” we much admire the indignant philippic against mothers who refuse to suckle their offspring—nor do we less strongly commend all which relates to the “adhesion of the placenta.” This highly important subject is, indeed, treated, we conceive, with great judgment and skill, and is strikingly illustrated by the recital of pertinent and well described cases. In details of this sort our author excels. He seizes on all the essential and prominent points of the case, and gives them with clearness and precision, without the fatigue of journalizing. The American practitioner, however, will be surprised, on reading these accounts, at the frequency of this accident in London, when compared with what happens in this country. Twenty-two cases are recorded—and their dates show all of them to have been within the period of five, and most of them within that of two years. Yet it would seem that these are selected from a larger number, as we are told that “the difficulty was to make a selection of the cases.”

With us, it has not happened in a practice of two-and-thirty years, and commanding a fair proportion of obstetric business, in the most populous city of the United States, to have witnessed one-half of this number of cases of “adherent placenta.” It would seem then to follow as a consequence, that our fair country-women enjoy, in no

under each particular circumstance. We cannot give them here, and therefore refer to the book itself.

We confess that we are a little surprised that he did not make a fourth species. It often occurs, and to the young practitioner is nearly as embarrassing as either of those mentioned, and like them almost always requires manual interference. It is when the placenta is detached from the uterus and partially protruded through the os uteri, though firmly embraced within its circle. It may be complicated with flooding like the former, and like them, also, is rarely disengaged by uterine efforts.

Each of the conditions enumerated by our author, is illustrated by well chosen and appropriate cases, in the history of which he gives such details of practice as cannot fail being both acceptable and useful. He has embodied a considerable number of excellent precepts upon this subject, which show him to be a practitioner of reflection as well as experience.

Next we have what he terms the "disruption of the placenta," which he defines to be those cases where "the general mass of the placenta is broken, and the ruptured part of its substance is left behind in the uterus, attached to its original site."

This accident he declares to have its origin generally "in mal-practice or bad management, and ought therefore never to happen"—and adds, "It is commonly produced by the application of premature and imprudent force to the funis, in the attempt to extract an adherent placenta through its means: yet it may happen, under an incautious or hurried attempt to remove the placenta by the hand. In every instance it is big with impending mischief."

For the management of these cases he gives clear and definite directions, and illustrates them by well marked cases. We cannot refrain from quoting a part of his concluding paragraph upon this subject, although, as he himself declares, it is of "little importance in itself," yet "may be magnified and misrepresented by an ignorant or prejudiced nurse, with a charge of misconduct, to the in-

size, it suddenly relaxes, and becomes larger and more flabby; it increases in bulk and extension in every direction," for he expressly states, that when the permanent contraction has taken place, the uterus does not admit of relaxation. We conceive him to have fallen into this error from some haste, perhaps, in composition, since the fact is very properly employed, as we have just stated. But this is of minor importance, since he is correct in his account of the sudden relaxation of the uterus, and its consequences, and gives judicious directions for its relief. For this reason we might pass over without any serious injury to our views of this accident, the account of the mechanism of the internal flooding, did it not involve a principle that should be carefully stated, namely, the independent powers which the fundus, body and neck of the uterus possess. With an intention of bringing this principle more distinctly into view, we shall give his own words as to the manner in which this internal or concealed hæmorrhagy takes place.

"The true state of the case is," says he, "that blood is slowly pouring out of the uterine vessels into the general cavity, which coagulates as quickly as extravasated. These coagula plugging up the os uteri, prevents the escape of any considerable quantity of even fluid blood; and their gradual accumulation at length mechanically distends the flaccid uterus." Upon this we shall remark, that this accident cannot possibly happen after the manner just stated: 1. Because we have no evidence that the blood coagulates as fast as "extravasated;" and he himself seems to be of opinion that all that is thrown out does not undergo this change, since he declares "that coagula prevent the escape of even fluid blood:" now, if all of it were coagulated as fast as extravasated, there would be no fluid blood to escape. 2. Admitting the blood formed coagula instantly, they could not be retained for a moment to "mechanically distend the flaccid uterus," unless their escape was prevented by the contraction of the mouth of the uterus, which he takes no notice of—for the force which would be required to distend the uterus, would be greater than that which retained them,

with or without the superinduction of dangerous symptoms." He divides such cases into three orders :

1. "Lingering labours, in which there is a mere consumption of time without any unfavourable symptom."

2. "Labours combined with a slighter degree of difficulty, but which cannot be surmounted by the natural efforts alone."

3. "Labours combined with an increased degree of difficulty, with a relative disproportion between the size of the head and the capacity of the pelvis."

The difficulties which give rise to the first order he makes to consist in,

1. An "undue degree of resistance in the soft parts opposed to the propulsive efforts."

2. "Diminished energy and activity of these efforts."

3. "An improper direction or position of the head of the child, as it respects the pelvis."

On the first head, he makes some general remarks, the correctness of which will be at once admitted by every practitioner—then considers the means usually resorted to, and ranges these "under five several heads."

1. "The internal exhibition of opium."

2. "The abstraction of blood."

3. "The repeated injection of warm clysters."

4. "The external use of warm fomentations."

5. "The exhibition of *placebo* medicines."

His observations on the use of opium are perfectly in conformity with our own experience, and we without hesitation concede, that "in lingering cases under rigidity of parts, their effects are at best uncertain:" that they have no tendency to produce relaxation ; that in large doses, though they may procure some temporary relief, it is at the expense of uterine action, which we cannot control or ensure at pleasure, and that "when this is the case, the labour is always protracted—its regular course becomes deranged, and the pains are uncertain in time and power." We regret our limits will not allow of more ample extracts upon this subject, as it is highly important, especially in this

or less efficient. Besides, the use of this remedy should be limited to appropriate cases; and some experience is absolutely necessary to determine these. To a want of attention to this circumstance, is owing, we suspect, the discrepancy in the accounts of its powers.

Third order, or improper position or direction of the child's head, as it respects the pelvis." Little is said upon this subject, but our author comes to this conclusion, that where much time, say thirty-six or eight-and-forty hours, have been unavailingly spent, that the child from the compression its head suffers, running great risk of injury, as well as the mother, "it is safest for both to have recourse to artificial assistance rather *prematurely*, than to defer it too long." We think him correct in this deduction, as it is justified by our own experience. But were we disposed to cavil, we might object to the word "*prematurely*," as we believe it does not correctly express the author's meaning. It seems to us it should only be understood, that he would proceed to artificial means before the woman was exhausted, or the life of the child jeopardized, and not to convey the idea, he would interfere before there was a necessity, as might with sufficient ground be presumed from this term. These subjects are also followed by cases.

The next discussion is "on protracted labour under a natural presentation, combined with a slight degree of deformity." Under this head, he considers "those natural cases of protraction, under which the expulsive powers either give way, or are in danger of giving way, so that they become unable of themselves to complete the act of labour"—recourse must then be had to mechanical powers, and these aids "are called either forceps or vectes cases." He gives a short account of the mechanism of natural labour, and considers, in a brief manner, deformity of pelvis, with some of its consequences. He declares, that "necessity, and necessity alone, is the only justifiable plea for the use of instruments:" "Let us," continues he, "therefore enquire into the nature of those marks or symptoms, the presence or absence of which establishes that necessity." He declares them to be both "complex and various"—and ranges them

vered." This subject is also furnished with instructive cases.

We sincerely regret, that our limits do not permit us to give larger extracts from this excellent work, or to enter more fully into the discussion of the important subjects of which it treats. Enough, however, has, perhaps, been done, to awaken attention to it, and we cannot forbear to hope, to induce some of our liberal booksellers to reprint it, for the benefit of the profession in the United States.*

ART. XIV. *A Dictionary of Chemistry, on the basis of Mr. Nicholson's, in which the Principles of the Science are investigated anew, and its applications to the Phenomena of Nature, Medicine, Mineralogy, Agriculture, and Manufactures, detailed.* By ANDREW URE, M. D. Professor of the Andersonian Institution, &c. &c. *With an Introductory Dissertation, containing instructions for converting the alphabetical arrangement into a systematic order of study.* First American edition, Philadelphia, 1821, 2 vols. 8vo. Edited by Professor HARE, with the assistance of Dr. BACHE. Published by Robert Desilver.

IT must not be supposed that this is nothing more than a corrected edition of Nicholson's Dictionary. It is, in fact, a new work; and is, in every respect, superior to that which has been used as its basis. The English journals speak of it in terms of the highest commendation; and we, after having examined it with some care, do not hesitate to pronounce it worthy of all their praise.

The author came to his task with a degree of preparation which is amply evidenced by the fact of his having completed the work in the space of five months, although the arti-

* The above Review has been furnished by one of the most distinguished of the teachers and practitioners of midwifery in this country, whose experience is lengthened, and judgment unquestionable. As coming from such authority, the praise bestowed on the work may be considered as just. We unite most cordially with our intelligent and valuable friend in recommending a republication of it.—*Editor.*

ture discloses, must satisfy every candid student of the presence and providence of a wise and beneficent Lawgiver. The first and most exalted function of physics, then, is to dissipate the gloomy and bewildered mists of metaphysics. A second function, of supreme importance, is to point out the mysterious and impassible barriers, to which the clearest paths of physical demonstration ultimately lead the human mind; and thence to inculcate docility to the analogous mysteries of Revelation."

In considering the work before us, we have to regret that the general design of this journal will not permit us to make any copious extracts, or even to enter into the discussion of many points on which we should otherwise be glad to give our opinion. We must content ourselves with a few passing remarks, upon some of the principal articles.

Acids. All the rules of Bacon and Newton have not been sufficient to prevent philosophers from forming hasty generalizations. The fact that phosphorus, sulphur, carbon, and some other combustibles, form an acid by their union with oxygen, led Lavoisier and his disciples to consider this as *the acidifying principle*, and to conclude that all other acids, such as the muriatic, fluoric, &c. were also compounds of oxygen and an unknown base. The discoveries of the present century have proved this conclusion to be unfounded, and have shown that there are many acids into the composition of which oxygen does not enter. The notion of a general acidifying principle was thus about to be abandoned, when Dr. Murray started a new hypothesis, and conceived the presence of water, or of its elements, to be necessary to the constitution of acids. This notion, Dr. Ure combats ably, and, we think, successfully. The American editor proposes a new hypothesis. "It seems to me," he observes, "that the galvanic fluid is the acidifying principle, and that the acid state is the consequence of galvanic arrangements or polarities. It is known that moisture is indispensable to the operation of these. On adding water to concentrated sulphuric acid, the hydrogen and oxygen severally go to the different poles of the previous compound. Hence the hydrogen evolved by iron or zinc and diluted

“ This process of forming fat in the lower intestines, by means of bile, throws considerable light upon the nourishment derived from clysters, a fact well ascertained, but which could not be explained. It also accounts for the wasting of the body, which so invariably attends all complaints of the lower bowels. It accounts too for all the varieties in the turns of the colon, which we meet with in so great a degree in different animals. This property of the bile explains likewise the formation of fatty concretions in the gall-bladder, so commonly met with, and which, from these experiments, appear to be produced by the action of the bile on the mucus secreted in the gall bladder; and it enables us to understand how want of the gall-bladder in children, from mal-conformation, is attended with excessive leanness, notwithstanding a great appetite, and leads to early death. Fat thus appears to be formed in the intestines, and from thence received into the circulation, and deposited in almost every part of the body; and as there appear to be no direct channels by which any superabundance of it can be thrown out of the body, whenever its supply exceeds the consumption, its accumulation becomes a disease, and often a very distressing one.”

Blow-pipe. Credit is given to Dr. Hare, in this article, for having first employed, for the purpose of producing intense degrees of heat, a flame supplied by oxygen and hydrogen gases, in the proportion requisite for forming water. Still many of the results which he and Mr. Silliman had previously obtained with the compound blow-pipe, are here ascribed to Dr. Clarke, and this plagiarist is made to play a very conspicuous part in the whole account. Dr. Hare successfully vindicates his claims by presenting an extract from the *Annales de Chimie*, in which it is demonstrated, “on the one hand, that Mr. Clarke had been anticipated in America, with respect to the fusion of bodies in the flame of hydrogen and oxygen; and, on the other, that the blow-pipe of Hare gives results almost perfectly identical with those of Brooke.”

Caloric. Under this title we have a treatise, entirely from the pen of Dr. Ure, which occupies no less than eighty co-

Medical and Philosophical Intelligence.

ANATOMY, PHYSIOLOGY, &c.

On the Vascular Network of the Choroid Coat of the Eye.—Soemmering has lately occupied sixteen quarto pages in a very interesting work on this subject. Not satisfied with what had been already done, our author invented and tried various machines, in order to obtain a satisfactory view of the vascular network of the choroid coat. After more than twenty years trial to realize his wish, he on a sudden succeeded beyond his expectations by employing Wollaston's camera lucida, as simplified by his son, conjoined with one of Dollond's microscopes. Of incomparable beauty are the views of portions of the choroid coat, measuring scarcely one-fourth of a line square, obtained in this way; drawn by Soemmering the son, and engraved by Schleich. Portions of the choroid coat of the man, a child, an ox, a salamander, and a cock, twenty-five times magnified, gave the result, viz. that the finest vessels in the salamander are absolutely larger than those of the ox and man. "It is now proved as a new anatomical fact, demonstrated by ocular demonstration, that the blood-vessels of the choroid coat do not diminish in size, as the size of the eye-ball diminishes, but that the choroid coat of a small eye may be considered as a part of the choroid coat of a larger eye." (p. 20.) "Further, that the configuration of the vascular network of the choroid coat of the eye, in the various classes, genera, and species of animals, is so different, that the coat of each may be thereby readily distinguished."

The retina has a distinct set of blood-vessels derived from the central artery, and terminating in the central vein, and which have no communication or inosculation with those of the choroid coat, excepting at the edge of the retina. From this separate system of blood-vessels, and owing to its own elasticity, the retina wrinkles and shrinks, not only after death, but during life, subsequently to violent inflammation, wounds and bruises.—(*Quarterly Journal of Foreign Medicine and Surgery*, Vol. ii.)

Account of a Child of Three Years of Age, in whom there appeared Signs of Puberty, by GILBERT BRESCHET, M. D.—James A. Savin, the subject of this memoir, was born at Montmorillon,
VOL. III. 53 No. 6.

October 20th, 1817, of healthy and well-formed parents. His father was 29, his mother 27 years of age, at the time of his birth. He now weighs 50 pounds (avoirdupois), and is three feet six inches three quarters (English) in height. The penis measured in length from the pubis to the extremity of the glans nearly four inches when in a flaccid, and five inches and a quarter, when in a state of erection. The circumference of the glans in the former condition was three inches and a half; in the latter, three inches and three quarters. All the functions appear to be in a healthy and vigorous state. A spermatric odour exhales from his body, and the stains occasionally observed on his linen, would lead to the belief that semen is secreted, although there is no other proof of this secretion taking place. His gait is free from the vacillation which characterizes that of children of his age, and his muscles are more developed, and more vigorous. He is of an intrepid disposition, conscious of his power, disdaining to engage with children of his own years; and placing his chief delight in contests of strength with those with whom he is a more equal match. His voice is sonorous, and corresponding in its tone to that of a youth of 16 or 18 years of age, and, in a word, has the character of puberty. His style of expression is laconic, abrupt, and often imperative. His intellect, however, does not appear to have made a progress at all corresponding to that of the genital system; for though his memory is good, his judgment is not at all superior to what might be expected from his age and the education he has received, and his imagination is not peculiarly vivid.

The testicles are not enlarged in the same degree as the penis. The prepuce is voluminous, and is accumulated behind the glans, constituting a natural paraphymosis. The sexual instinct has manifested itself by the frequent erection of this organ, on occasions calculated to excite it: it has not, however, led to the practice of onanism. The teeth made their appearance unusually early. Dr. Spurzheim, who was desired by Dr. Breschet to examine the external form of the head of this boy, reported that the cerebellum appeared to have acquired a very considerable development; and he seemed to think even that very few adults have that organ of so great a size. Dr. Breschet, however, expressly states that he declines giving any opinion as to the truth of the peculiar physiological system which relates to the influence of the cerebellum on the genital system of the organs.

SURGERY, MIDWIFERY, &c.

Suggestion respecting the possibility of Destroying Cancer, by the application of intense Cold.—An expedient has suggested itself to my mind, by which I think that the application of artificial cold to a diseased part might be rendered very manageable:

that is, by employing masses or plates of metal, cooled down to the requisite degree in a frigorific mixture, and then applied, for a sufficient time, to the part upon which it might be wished to induce mortification. I suppose that this effect would certainly be induced, by the application of heat, after withdrawing the cold application.

Such metallic masses might be formed to any shape or size that might be wanted, and would have the advantage of limiting the application of the cold correctly to the surface intended.

The section of Van Swieten, which I mentioned to you to-day, upon the subject of cancer, is 499. His speculation about curing the diseases, by inducing mortification, commences with the words, "Sed an non possit totus cancer emori?" or, in the translation, "But is it not possible for a cancer to mortify?" and is continued to the end of that paragraph. The view he takes of the subject seems most sound and rational; and it appears to me that we possess an agent, in artificial cold, sufficiently powerful to execute his views. Having barely suggested the idea, I shall content myself with recommending it to your more mature deliberation.

It would seem to correspond pretty correctly to what Van Swieten was in quest of; but in deep-seated diseases, where the preservation of skin by the knife so much contributes to the cure, it would seem to be less suitable. In more superficial affections, or in prominent tumours, especially those with circumscribed necks or bases, it may have fewer disadvantages.

Abstract of the account of a Case of Adhesion of the Labia Pudendi in a Negro, obstructing Delivery, by WILLIAM RUSSELL, of Jamaica.—Mr. Thomas Geoghagen had, amongst his negroes in Jamaica, a woman named Avis, about 27 years of age, of the Eboe nation, who, on declaring herself in an advanced state of pregnancy, asserted at the same time that she could not be delivered, as there was no external passage, and therefore expected that she should die in consequence. There was found, on examination, to be a cicatrix extending from the mons Veneris to within an inch of the anus, where there existed a small orifice barely sufficient for the introduction of a small female catheter, through which orifice the urine and menses exuded. This cicatrix appeared to have been the consequence of an operation which had been performed upon her in her native country when a child, and which she said was commonly practised with the female offspring of families of rank, as a security against improper connections. The adhesion being removed by an incision with a sharp pointed bistoury, the delivery was easily accomplished, and future adhesion prevented by interposing a bougie till the wound of the labia on each side had healed.

New venereal affection.—Dr. Zennichelli, of Padua, found, in the little village of Falcada, in the Venetian territory, a place containing about eight hundred inhabitants, that several families were affected with peculiar venereal symptoms. Corroding ulcers in the throat, extending ultimately to the nasal fossæ, which they entirely destroyed; others, of a more obstinate character, affecting and destroying the skin of the neck and chest, and, after healing on one side, attacking the opposite one, together with the itch, were the most general symptoms. The greater number of the adults had gonorrhœa, ulcers on the penis, buboes and excrescences of various kinds; rarely, pains in the bones, or exostoses. Many fell victims in the last stage, of marasmus, and some in the most frightful convulsions. The disease has been confined to the village of Falcada, all the neighbouring inhabitants having guarded against it with much precaution, from the terror it inspired. Dr. Z. has hence called this affection "*Falcadina*." The doctor considers it capable of communication in three modes; by coitus, by contact with the skin in a state of ulceration, and by inheritance. It has almost wholly lost its activity, and the families first affected are at present free from this scourge. The scabies is common to almost all the inhabitants of the vicinity. (*Annali di Medicina*; April, 1820—apud *Quart. For. Journ.*)

Phosphorescence of Wounds.—It is known that light is emitted from organized bodies, when putrefaction takes place under certain circumstances: the same phenomenon sometimes occurs in wounds; and doubtless a greater number of instances would be recorded, where they often dressed in the dark. Baron Percy, who, during twenty-five years of war, has had under his care more than a million wounded, has often been deprived of the advantage of light. It was thus that he observed in a young soldier the phosphorescence of a slight wound in the leg, for more than fifteen days. In this case it might perhaps be attributed to the man's having applied compresses dipped in urine to the wound: but some time afterwards, at the siege of Mannheim, a vivid light, a true ignis fatuus, existed for more than six days over the wound of an officer, who had been dressed with compresses wetted with pure water only. Baron Percy has since had frequent opportunities of observing similar facts.

An account of a case in which numerous Calculi were extracted from the urinary bladder, without the employment of cutting instruments. By Astley Cooper, Esq.—Every attempt to obviate the necessity of surgical operations, should be received as a great blessing conferred on mankind. Sir Astley Cooper, to the many improvements he has introduced into the practice of

surgery, has here added another, which in importance is, perhaps, entitled to rank first; for, when an individual has the misfortune of being afflicted with calculi, and those calculi are not large, he may be freed from them without recourse being had to an operation, which, though now performed with celerity and more safety than in former times, is always attended with severe pain, and occasionally, too, with considerable difficulty and danger.

Sir A. relates the case of a clergyman, aged 64, who suffering from the presence of small calculi in the bladder, as ascertained by sounding, and by the coming away of small white stones in the openings of the instrument, submitted to an experiment, first devised and proposed by Sir Astley, by which eighty-four calculi were extracted from the bladder in the course of a few weeks. The health of the patient had been all that time uninterruptedly good, and the operation unattended by any very severe pain.

Sir A. then proceeds to describe the instrument by which the calculi were removed through the urethra, consisting of a sort of forceps, the blades of which can be opened whilst in the bladder, by means of a stilette, so as to grasp and confine the stone. This instrument was contrived conjointly by the author and Mr. Weiss, the very ingenious instrument-maker in the Strand; but the original idea of employing a curved sound-like forceps for the extraction of the first eight calculi, in the case related, belong solely to Sir Astley.

Cases of Bronchocele or Goitre, treated by Seton; with Observations, by A. Copland Hutchison, Esq.—Mr. Hutchison, than whom no surgeon has the improvement of his profession more at heart, having read the account of Professor Quadri's practice in cases of bronchocele, availed himself of the first opportunity to submit its expediency to the test of trial. A middle-aged Irish woman presented herself to him in September, 1819, with a goitre about the size of a large orange, of rather a firm and hard structure, extending more to the left than to the right side of the neck, the lobe of the thyroid gland being most enlarged, and the disease occasioning pain and uneasiness in the left ear; without, however, impeding deglutition or respiration. Mr. Hutchison passed a long and narrow seton needle, armed with half a skain of silk thread, obliquely through the substance of the gland from the left lobe upward, leaving a space of nearly two inches between the entrance and escape of the instrument. A trifling hemorrhage succeeded the operation, but not such as to create the least anxiety. A few days after the operation, a slight degree of erysipelatous inflammation supervened, which was followed by a profuse discharge of a thin acrid matter: As

soon as the inflammatory action subsided, the discharge was kept up by occasionally besmearing the seton with savine ointment. On the fifth of December, a fresh seton was applied in an opposite direction. During the following inclement season, the poor woman was attacked with fever, but recovered; and, the tumour gradually diminishing under the action of the discharge, which continued, notwithstanding the accidental removal of the seton, she was ultimately discharged cured. The disease is scarcely perceptible, the patient is well, and the skin which covers the tumour, of its natural colour.

Mr. Hutchison thinks that the operation by seton in cases of bronchocele is not to be considered as dangerous; but, in irritable habits, and in the hard lobulated species of the disease, he cautions practitioners to weigh well the necessity of such an operation before they attempt to perform it.

The writer next proceeds to give some instructions respecting the employment of setons in bronchocele, and states his own views with regard to the manner in which the cure of that disease, by means of the operation in question, is effected. On the subject of the probable causes of bronchocele, Mr. Hutchison, instead of wasting his time in idle conjectures, or in a mere compilation of what others have fancied on the subject, very properly observes, that, "before we can reasonably expect to arrive at the causes of the diseased structure, our inquiries should be first directed to obtain a knowledge of the functions of the gland itself, which are at present involved in mystery."

The paper concludes with notes on a case of bronchocele operated upon by Mr. Gunning, in St. George's Hospital, which proved fatal; with a report of cases successfully treated by Mr. A. T. Thomson, of Sloane-street; and with a letter from Mr. James, of the Devon and Exeter Hospital, in which the details of another instance of success are given, obtained in a case of bronchocele by means of the seton.

Case of a separation of a portion of the Uterus during severe Labour, by P. N. Scott, Esq.—A married woman, aged thirty-six, in labour of her first child, was seen by the author, in consultation with her attendant accoucheur, after several hours of the most acute suffering. He found her in a most alarming state, and she appeared to be rapidly sinking.

"She with difficulty told me, that, about two hours before, during a most severe pain, she felt something snap. and, to use her own words, 'that the web of her body had given way;' the noise of which one of her attendants declared she heard: the pains had then suddenly ceased, attended with a discharge of blood, fainting, cold sweats, feeble pulse, and a vomiting of a brownish fluid. On introducing my hand under the bed clothes,

I found there had been a very considerable hemorrhage, and among the coagula I discovered a substance which I put aside for future examination. At this time I found the head of the child so low as to enable me to accomplish delivery speedily with the vectis."

This substance was examined by Dr. Rigby and others, and was by most of them considered to be a circular portion of the uterus. The explanation of this curious fact (supposing it to be a real rupture of the uterus), supplied by Dr. Merriman to the author, is not accordant with the well-known mechanism of labour. The patient eventually recovered.

THEORY AND PRACTICE OF PHYSIC, MATERIA MEDICA, &c.

To the official preparations of opium may be added several of great value not incorporated in the Pharmacopœiæ, of which, the first I shall notice is the *Black Drop*. This has long been vended as a nostrum in this city, and is now much employed here, and in Europe. Of the two formulæ annexed, the second is commonly adopted.

1. Take of Opium, four ounces,

Sharp vinegar or lemon juice, four pints.

Digest three weeks, and then add saffron, cloves, nutmeg, and cinnamon, of each an ounce, coarsely powdered. Continue the digestion a week longer, strain through flannel, and evaporate the liquor, till reduced to a state of syrup.

2. Take half a pound of opium sliced,

three pints of good verjuice, and one and a half ounce of nutmegs, and half an ounce of saffron.

Boil them to a proper thickness, and then add a half pound of sugar, and two spoonsful of yeast. Set the whole in a warm place near the fire for six or eight weeks, then place it in the open air, till it becomes a syrup. Lastly, decant, filter, and bottle it up, adding a little sugar to each bottle.

This preparation unquestionably deserves a place in the shops. It is distinguished by the property of being well received by the stomach, and, while it produces the anodyne effect in the fullest extent, is not so apt to leave behind it any distressing consequences, such as sickness, head-ache, nervous tremors, &c.

Most probably this superiority is owing to the acid menstruum employed. It is an interesting fact, and one which lends much support to this conjecture, that laudanum, in a small portion of vinegar, operates much more kindly. This is indeed so true, that I have known several persons, who were utterly precluded from the use of opiates in the ordinary forms, take this acetous mixture with great comfort and advantage. Nor is it

true, as is commonly supposed, that the powers of opium are impaired by the addition of an acid. It has, on the contrary, been ascertained, that they are augmented, probably by the formation of soluble salts with morphia. As regards the black drop, the increase of strength is certain, so much so, indeed, that the dose is about a third of that of laudanum. But though the acids heighten the narcotic powers of opium, they counteract its effects. They are not antidotes to the substance itself, but correctives of the impression which it creates.

In the following preparation of opium, we are told the taste and smell of the medicine are completely concealed, and that it leaves no unpleasant effects on the stomach or head.

R Extr. glycirrh.

— opii āā ℥ss.

Potass carb. ℥j.

Aqua. ℥iij.

The whole to be boiled to one pint, the clear liquor to be poured off, and evaporated to twelve ounces,—then add spirit of pimento five ounces, and half a drachm of finely powdered cochineal.

There is another preparation of opium lately introduced by Dr. Porter, of Bristol, England, which is highly commended. It is entitled liquor morphii citratis. The following is his formula.

R Opii crudi optimi. ℥iv.

Acidi citrici, cryst. ℥ij.

Semel in mortario lapideo contunde, dein aquæ distillatæ brilliantis Oj affunde—et intime misceantur—macera per horas viginti quatuor—per chartam bibulosam cola.

In commenting on the above preparation, Dr. Paris observes, “I have lately submitted it to the test of experience, and it certainly possesses the merit of a powerful anodyne, operating with less disturbance than the more ordinary forms of opium. I also take this opportunity of stating, that the *pyroligneous acid* was used as a menstruum, and the effect was similar to that of Dr. Porter.”

Liquor Opii Sedativus.—By this title a preparation of opium is made and vended by Mr. Battley, a well known apothecary of London. The exact composition or formula is not revealed. We are told, generally, that it is “the *sedative property of opium*, separated or divided from every other property of opium, so far as I have succeeded in effecting such division or separation, *diffused in distilled water.*”

“It has,” continues he, “been ascertained by extensive experience, in one of the largest fields of observation and proof, that it is superior to the vin. opii, and other preparations of

opium, in affections of the eye requiring the use of opium,—and in the last stage of cancerous tumours, after the skin grows dry, and the fungous appearance takes place, the power of this medicine in allaying pain and mitigating suffering, would alone render it an object of professional and public interest.

It is conjectured by Dr. Paris, that this preparation owes its efficacy to the *acetate of morphia*. He says, that, by being kept only a short time, it undergoes certain changes, which are an insuperable objection to its admission into practice. To this, it is replied by the inventor, that the addition of a *sixteenth part of spirit* prevents such changes for months, which, however, he rather inconsistently admits, would render it unfit for the very purposes, for which he previously extols it.

Solanum Tuberosum.—Being a species of *solanum*, the potatoe might be suspected to have qualities similar to the other articles of the same family. But it is only within a very short time, that this has been demonstrated satisfactorily.

Experiments, conducted under the auspices of Dr. Latham, president of the College of Physicians, of London, have so fully ascertained its narcotic properties, as to warrant the expectation, that it will hereafter hold no mean rank in the catalogue of medicines.

He has prescribed it in protracted coughs,—in chronic rheumatism—in *angina pectoris*—in *cephalalgia*—in a case of calculus lodged in the ureter—and in cancer of the uterus, in all which diseases it proved highly advantageous.

“I am unwilling,” he observes, “to say more of the *solanum tuberosum*, lest I should hereafter be found to have said too much. But I think it superior to *hyosciamus*, and *conium*, and, therefore, with confidence recommend it to my professional brethren, not only in cases, where those medicines have been most commonly employed, but generally in all chronic cases where there may be excess of painful irritations, or irregularity of action.”

The preparation used is an extract of the leaves and stalks of the plant, of which the dose is half a grain, several times a day, to be increased, as in the case of all other narcotics, to a much larger quantity.

Piper Cubeba.—This plant, a native of the Island of Java, produces a berry, which has of late attracted some share of attention as a remedial agent of considerable efficacy. It formerly held a place in the *materia medica*, and entered into the composition of *mithridate* and *theriaca*, &c. But, as often happens with medicines, it fell so completely into disuse, that when again brought forward, it was considered by many as a new acquisition.

It is now about three years, since an account was published in one of the British Journals of its great powers in recent gonorrhœa, and some time afterwards its use was extended to gleet and fluor albus. The Javanese, it appears, have long been acquainted with it as a remedy in the former of these complaints, and from them an English surgeon, on the Indian establishment, acquired it.*

What is its precise value I cannot say positively, from my own experience. I have employed it repeatedly in the several diseases in which it is recommended, and though, now and then, it has done good in gonorrhœa, by checking or suspending the discharge, no entire cure was accomplished. To the other cases, it has struck me as being less adapted.

Confidence, in a much greater degree, is, however, reposed in the article by some of the European practitioners, who even consider it as a specific in the diseases mentioned, and particularly gonorrhœa. Whether this difference of success be ascribable to the state in which the article is found in our shops, I cannot tell.

The cubebæ are powdered for use, of which a desert-spoonful, mixed in water, is to be taken five or six times a day.

I annex a tabular view of the comparative success of different modes of treating gonorrhœa, in which the powers of cubebæ are exemplified.

Report of cases of Gonorrhœa in the hospital of the castle of Edinburgh, conducted under the care of Messrs. Johnston and Bartlett, of the 88th regiment.

Fifty-four cases of Gonorrhœa have been discharged, cured, from the 25th June to 24th December, 1817.

They were treated by injection (twenty grains of argent. nitr. dissolved in one ounce of plain boiled water,) twenty, of which

One	was discharged	cured in	three days.	} Average 17½ days.
One	-	-	five ditto.	
One	-	-	six ditto.	
Two	-	-	ten ditto.	
Four	-	-	fifteen ditto.	
Four	-	-	seventeen ditto.	
Four	-	-	twenty ditto.	
One	-	-	twenty-five ditto.	
One	-	-	twenty eight do.	
One	-	-	forty-two ditto.	

* Edinburgh Medical and Surgical Journal, for 1818.

There were treated by rest and abstinence fifteen, of which				
Three	were discharged	cured in	three days.	Average 8½
Two	-	-	five ditto.	
Four	-	-	seven ditto.	
Four	-	-	ten ditto.	
One	-	-	eighteen ditto.	
One	-	-	twenty-three do.	

There were treated by internal medicines nineteen, of which

<i>By the Piper Cubeba.</i>	<i>By Capsicum.</i>	<i>By Camphor.</i>
Two in four days.	Four in eight days.	One in five days.
Two in five days.	Two in twelve days.	One in eight days.
Four in six days.	Two in twenty-four.	One in fourteen days.

From the latter statement it appears, that the average number of days in which a cure was effected, is as follows: by the use of the Piper Cubeba five and a quarter; Capsicum thirteen and a half; Camphor nine.

Inhalations.—With such views, sulphuric ether is strongly recommended, and we are told, by very respectable authority,* that its powers are improved by several substances which are soluble in it. Cicuta is particularly praised, half a drachm of which is to be digested in an ounce of ether, for several days, so as to form a saturated tincture. Of this, two or three tea-spoonsful are to be put into a wine glass, to be held up to the mouth, and inspired till the whole is consumed. My knowledge of this remedy enables me to speak confidently of its utility. I have tried it often, in dyspnœa from different causes, and generally with advantage. It is very useful, as was originally suggested, in consumption, and especially if it be repeated several times in the day.

But, perhaps, a still more valuable remedy of this sort I have derived from Dr. Physick. It consists of a tea-spoonful of Hoffman's anodyne liquor, and another of laudanum, which mixture is to be breathed for half an hour or more at a time.

In the forming stage of catarrh, in obstinate coryza, and in hoarseness of recent or long standing, its effects are most striking and decisive. The principle on which it acts, is obvious. The parts are here more or less inflamed, which state is relieved by the counter agency of the fumes coming in contact with them.

Cinchona.—The bark is most active in substance. In the exhibition, it is mixed with some fluid, as milk, coffee, wine and

* Dr. Richard Pearson.

water, an infusion of serpentaria, or, what disguises its taste very effectually, a solution of liquorice.

The powers of bark, in intermittents, are undoubtedly improved, by uniting with it some other articles, and particularly cloves, cremor tartar, or the carbonate of potash, or soda. The proportion is about a drachm to the ounce, and the two first may be, in some instances, put in the same preparation. The formula with the fixed alkalies is as follows.

R Cort. peruv. $\frac{3}{4}$ ss.

Rad. serpent. $\frac{3}{4}$ l.

Soda carb. vel potass. carb. gr. xl.

M. div. in pulv. iv.

The whole of which are to be taken in the course of the day. Of the decided efficacy of this preparation, I entertain not the slightest doubt. It has long had an established reputation in the practice of this city, and I have known it very promptly arrest some of the most intractable cases.

Ferri sub-carbonas.—This has been very successfully employed, within a short time, in tic douloureux, by Mr. Hutchinson, a distinguished English surgeon.

With little or no preliminary treatment, it appears, that he enters on the use of the carbonate of iron, in the dose of from half a drachm, to a drachm, or more, two or three times a day, and which, to be effectual, requires to be continued for weeks or months. Of this practice I know nothing, except from some slight notices of it in the late Medical Journals, which represent it as having the highest claims to attention.

Balsam copaivæ.—I have lately learnt from Mr. Frederick Brown, a most intelligent apothecary of this city, a much more convenient mode of exhibiting this medicine, than any hitherto proposed. The copaiva is poured on half a wine-glassful of sweetened water, and immediately afterwards are slowly added, in the same way, a few drops of the common bitter tincture. By this, the copaiva is collected in a small globule, which is readily swallowed, and its taste, so nauseous to most people, is entirely lost in the bitterness of the vehicle. Given in this mode, it always rests well on the stomach.

Unguentum Hydrargyri.—Experiments made recently by Mr. Donovan, show, that, in the officinal ointment, mercury exists in the state of metal, *mechanically mixed*, and in that of an oxide, *chemically combined* with the lard, and that to the latter all the activity of the preparation is to be ascribed. He accordingly formed a direct chemical combination, by continually

agitating together lard and black oxide of mercury, at the temperature of 350° of Fahr. for two hours. On trial, it was found much more prompt and efficient than the officinal ointment, and hence is strongly recommended to general adoption.—*The preceding articles are taken from Chapman's Therapeutics, second edition.*

Use of Mare's Milk in Tænia.—The German physicians have lately remarked beneficial effects from mare's milk in cases of tænia. Dr. Kortum of Stalberg relates the following case in Hufeland's Journal. A lady between thirty and forty years of age had long suffered from tænia, and several attempts to remove it had failed, owing to the patient's great dislike to medicines, which caused every thing of this kind to be instantly rejected by vomiting. Having heard of several individuals that were cured by simply drinking fresh drawn mare's milk morning and evening, she resolved to give it a trial. Having an opportunity in autumn she drank two cups in the evening. Soon afterwards violent pains commenced in her bowels, and continued dreadfully severe during almost the whole night. In the morning however she took one cup more, after which pains in her bowels followed, but much less severe than before. In a few days a long piece of dead, and partly putrid tænia was discharged, and in a short time afterwards another piece with the narrow tapering end of the worm, and with this all the symptoms ceased. This peculiarity of mare's milk is the more remarkable, as that of the cow seems to be agreeable to the worm, and on being drank merely alleviates the symptoms.

Use of Iodine.—As this medicine is undergoing trials in America, it may be useful to insert here the following directions and cautions in its use; from the *Bibliothèque Universelle*, for February, 1821, as quoted in an English Journal. Of all the preparations of iodine, that which is the most manageable, and produces the fewest accidents, is stated, by M. Coindet, to be the hydriodate of potass, with an excess of iodine, or, as it has been called, the "ioduretted hydriodate of potass." Thirty-six grains of the hydriodate, and ten grains of iodine, are dissolved in an ounce of distilled water. From six to ten drops are at first prescribed three times a day, and the dose is increased or diminished, according to the effects produced. M. Coindet is of opinion, that it is necessary to observe the time when the iodine is about to manifest its action, so as immediately to suspend its exhibition, and resume it eight or ten days afterwards, that is when the action of that before administered must terminate, and again to suspend it and resume it, as judicious practitioners employ mercury. The neglect of these rules has, in Paris, diminished the success of the remedy.

The following are the alarming symptoms observed by the author; acceleration of pulse, palpitation, dry cough, watchfulness, marasmus and prostration of strength; sometimes swelling of the legs, tremors, painful hardness of the bronchocele, diminution of the breasts, or a remarkable augmentation of appetite supervene; and he adds that in almost all the instances which he has observed, to the number of five or six, a very rapid diminution, or a disappearance, more or less complete has taken place, during those symptoms, even in hard, bulky and old bronchoceles.

On some patients the medicine acts almost immediately, while on others no effect is produced, even after they have taken it for several weeks in succession. An example of its quick action occurred in a man who had an enormous bronchocele in the two lobes of the thyroid body for a long series of years. Its increase was progressive, and it was very hard to the touch. The patient complained of choking and oppression when he walked, stooped, or went up stairs, but in other respects he enjoyed good health. He took thirty drops of the medicine daily, but on the fifth day complained of an increase in the size of the bronchocele, aphony, and rather severe pains, which required the suspension of the iodine, and the repeated application of leeches and poultices to the part. In fifteen days he had recovered his former state, with the exception of hoarseness: the bronchocele was also considerably diminished and softened. Two months after the commencement of the treatment, the remedy having been again administered, during four days, and again discontinued, the bronchocele was sufficiently diminished to free the patient from all inconvenience.

M. Coindet considers that the iodine is contra-indicated, when the constitutions of patients are remarkably delicate, nervous or weak. But he has seen its exhibition attended with admirable success. When the precautions he recommends have been observed, and the patients were affected with no other complaint than bronchocele, but above all when they were at an advanced period of life. The following is an example of its beneficial operation; it occurred in a woman seventy-five years old, who was affected with pains in the head, a tendency to drowsiness, and so great a weakness and numbness of the right arm, that she thought she touched every thing through a glove. These symptoms increased, as an immense bronchocele was developed in the right side of the thyroid body, as it had in an acute manner, for although it had commenced thirty years before, it had during three months been increased in bulk nearly as much as the size of the fist. It evidently interfered with the circulation in the brain, and compressed the brachial plexus. By the employment of the iodine, the disease was arrested after

a fortnight. In thirty days the bronchocele and bad symptoms were diminished. In a month afterwards the swelling, paralysis and affection of the head were all entirely dissipated.

The credit of the remedy is supported by other authorities, besides that of M. Coindet, and the name of Breschet is mentioned.

We have inserted directions for making the hydriodate of potass, in the last number of this Journal; but in order to furnish the whole at one view, we here copy and condense it.

Make a solution of caustic potash; add a sufficient quantity of iodine, and shake the bottle well; the hydriodate remains in solution. The liquor is then to be filtered, and the residue washed with alcohol, of the density of 0.82, so as to obtain another portion of the salt, to be added to the former liquid, which may be set to crystallize. An iodate, little soluble, remains on the filter. The salt employed is deliquescent, and has a slight yellow tinge.

Thirty-six grains of this, as above, are to be dissolved in an ounce of water, and ten grains of iodine to be then added.—*Quart. For. Journ.*

Analysis of the Sulphates of Cinchonin.—M. Robiquet has analysed three sulphates of cinchonin in the following manner, and with the annexed results. Equal quantities of each of the sulphates, which had been dried by the heat of a salt water bath, were dissolved in distilled water; and to each solution similar quantities of pure caustic potash are added. This decomposition effected with heat is attended with some peculiar characters. The solution becomes at first milky; and afterwards small oily drops swim on its surface; at last, when the heat has been long continued, the cinchonin coagulates, and unites into large white masses, which are opaque and very porous, and when these occur, the decomposition is complete. In order to finish the analysis, it remains only to filter the liquor, to separate it from the cinchonin, to wash the filter in the common manner, to supersaturate it with nitric acid, and to add a small quantity of nitrate of barytes.

The sulphate of barytes thus obtained, indicates, of course, that of the sulphuric acid contained in the salt under examination.

By this process, M. Robiquet analyzed the acidulous sulphate of the third crystallization, subsulphate of the first crystallization, and subsulphate of the third. The cinchonin, separated from the acid, did not contain any portion of sulphuric acid.

100 acidulous sulphate of cinchonin, third crystallization :

Sulphuric acid 19.1

Cinchonin..... 63.5

82.6

100 subsulphate of cinchonin, first crystallization :

Sulphuric acid 14.3

Cinchonin 79.0

90.3

100 subsulphate of cinchonin, third crystallization :

Sulphuric acid 10.0

Cinchonin..... 80.9

90.9*(Annales de Chimie et de Physique, tom. xviii. p. 320.)*

Use of Nitrate of Silver in Medicine.—The *Giornale di Fisica*, tom. xi., contains, at p. 355, a paper by Il C. Sementini, on the use of nitrate of silver in cases of epilepsy. After remarking on the difficulty which occurs in treating such cases, and the good effects which have been observed in using the nitrate of silver, and its superiority in this respect over all other remedies, both as to the effect it produces, and the little inconvenience it causes; the Cavalier states, that to secure the good effects belonging to it, the nitrate of silver should be well triturated with the vegetable extract, in combination with which it is given; that the first doses should be small, and the quantity gradually increased to six or eight grains, or even more, in a day: that the use should not be continued very long together; and that the patient should keep out of the action of light. The latter precaution is necessary, to prevent the discolouration of the skin, which sometimes happens after a long and copious use of this remedy. The precaution, however, only regards avoiding the meridian sun-light.

It frequently happens, in the use of this medicine, that a species of cutaneous eruption, consisting of small pustules, occurs. This may be regarded as a certain proof of the good effects of the medicine.

In the early part of this paper, Il C. Sementini, in endeavouring to remove the impression existing against nitrate of silver, because of its poisonous qualities, remarks, that being mixed with vegetable extract, it is not really the salt, but the oxide, that is given; and, therefore, the observations of M. Orfila, on the nitrate as a poison, have nothing to do with the power of the remedy. At the same time, as an argument for

using the nitrate in place of the oxide, it is remarked, that at the moment of decomposition a combination is, probably, effected between the extract and the oxide; and that actually the salt is found most efficacious.

Being assured of the use of nitrate of silver in epileptic affections, and reasoning upon its tonic effect, Il C. Sementini was induced to try its powers as a remedy in cases of paralysis. The first instance quoted is of a gilder, who, probably from the fumes of mercury, had become very paralytic. An eighth of a grain of nitrate of silver was prescribed at first, but the dose was increased every other day: by the time that three grains were taken the good effects were evident, and in twenty days more the man was perfectly restored. In another instance, every part of the body and limbs were paralyzed but the head. A small quantity was given at first, but it was increased to eight grains per day, and it effected a cure.

Three other instances are then adduced, in all of which cures were effected: and the Cavalier expresses his hopes, that, in the hands of other medical men, it will be found as effective and as important as in his own.

Preparation of the Extract of Hemlock.—The case of cancer and other diseases published by Stoerk in his *Libelli tres de Cicuta*, are seldom mentioned at the present day but to be doubted, or even hardily denied. We are much inclined however to believe, that hemlock is possessed of powers much beyond what is generally acknowledged by modern practitioners, and that it would be necessary only to take proper pains in the preparation of the medicine, and then to exhibit it with care to be convinced of this fact.

M. Orfila has been led, in the course of his experiments upon poison to ascertain the comparative effects of the extract of hemlock properly prepared, and of that which is usually sold in the shops. He found that a dram was sufficient to poison a dog, if he employed the extract prepared by himself, whereas an ounce, and even ten drams from several of the shops produced no effect whatever.

In preparing this extract, M. Orfila proceeds in the following manner, and these rules are applicable to other extracts of the same kind.

1. The plant must be taken when in full vegetation, and the flowers completely developed. Dried leaves treated with water are perfectly useless.

2. The juice is to be expressed, if the plant be succulent. If it be not succulent, water must be added, and then expression employed. In both cases, expression is to be made without heat.

uterine system in deficient menstruation. Five persons were subjected to these experiments. The preparation preferred was the alcoholic tincture; sometimes the iodine was united to the black oxide of manganese.

Case 1st. Maria Filippini aged 18 years, had until within these four months past enjoyed excellent health, since then she has had suppression of the menses by which she has been subjected to repeated spittings of blood.

Arrived at the clinical ward and subjected to the use of the iodine,—the spitting disappeared and she went away, her health tolerably well re-established.

Case 2d. Antonia Masa, 21 years of age, likewise wanting in her menstrual discharges for sometime past,—was taken with vicarious hæmoptysis.—The colour of the patient was yellowish and showed that her liver also was affected with diseased enlargement of the liver, the result of vascular energy.

The continued use of the iodine restored the functions of the uterus in such a manner that twice the menses flowed for six days in succession.—She is now perfectly restored to health.

Case 3d. Catherine Phillini, 22 years of age, suffering under dysentery from suppressed menstruation, was cured by the continued use of the iodine.

Case 4th. Giovanna Guerinæ, aged 16 years, pellagrous, entered the Clinical Institute with diarrhœa, reduced strength, suppression of the menses, and so emaciated that she seemed already labouring under marasmus.—The tincture of iodine restored this patient to her primitive health.

Case 5th. Maria Giacomini, 23 years of age, presented herself, complaining of prostration of strength, suppression of the menses, and in place of them a monthly loss of blood from the internal angle of the left eye.—The complexion of the patient was jaundiced, and she showed a state of preternatural assimilation in the greater number of the organic tissues, by a defect of vascular action.—When put under the use of chalybeate remedies, she almost constantly vomited.—The iodine alone was discovered to be eminently advantageous.—With happy results she was then treated with the tincture of iodine, and subsequently, the same combined with the black oxide of manganese.—The palpebral hæmorrhage ceased, and true menstruation appeared in its place.—The patient gained strength and colour, but the want of iodine prevented us from continuing our observations.

It is worthy of remark, that this remedy, besides its being endowed with the property of increasing vascular action, restoring sanguification and re-establishing the ordinary sanguineous excretions, particularly from the uterine vascular system on which it would seem to exercise a direct action, excites the activity of the gastric functions, so that under its use the appetite is re-

newed and active, the work of digestion goes on with celerity and without inconvenience even in delicate females, and those with weak stomachs.

Double Fetus.—Twin children, closely connected at the chest, are said to be in the possession of Mr. James Barton, Dale End, Birmingham, and are in the highest state of preservation. There is only one set of organs to both children. They are of the usual size of children at nine months.—*Lond. Med. and Phys. Jour.*

Singular Fetus.—A male child was born, in May last, at the Hospital of la Maternité at Paris, with the whole surface of the body deeply wrinkled like that of a very old man. Its hands and feet are double the ordinary length, and are equally wrinkled. It has strong grey hair, and a beard of the same colour. In every other respect it enjoys perfect health, and is nursed in the hospital.—*Tablettes Universelles.*

ERRATA.

In Doctor Bell's Paper, published in our fifth Number, page 21, in the note, 8 lines from the bottom, for *esse* read *eset*—and three lines lower down, make a similar alteration.

In page 22, fifteen lines from the top, for *Ostevlis* read *Ostivlis*—in the last line, for *sarcienda* read *sarciendo*.

In page 23, in the sixth line from the top, for *morta* read *morte*—in the eleventh line, for *Belleni* read *Bellini*, and in the thirteenth, for *works* read *words*—in the twentieth, for *Premona* read *Cremona*—four lines lower down, for *Magetti* read *Magatti*—in the third line from the bottom, for *referne salent put refene solent*—in the note, for *appida* read *oppida*.

In page 24, twenty-four lines from the top, for *medico* read *medica*—and in the fourth line from the bottom, for *motuce* read *motrice*.

In page 25, line fourteenth, for *degue* read *deque*—line twenty-third, for *Mā* read *Mea*—and lower down, for *prabē cognovent* read *probē cognoverit*.

In page 34, nine lines from the bottom, for *still cannot we,* read *still we cannot*.

In page 42, line fifteen, insert after "in a diseased state of the liver" in a scorbutic habit, "that is," &c.

In page 126, in the title of Dr. Emerson's paper, on Sulphurous Fumigations, for *certain cases* read *certain diseases*.

INDEX.

ABSORPTION, experiments on, by Drs. Tiedemann and Gmelin	149
Absorption, Dr. Meyer's experiments on	181
Absorption, report of the committee of the Academy of Medicine on the means by which it is effected	273
Acarus scabiei, first discovered	26
Amalgam of tin and mercury retained in the bowels	146
Ameline's anatomical model	179
Angina pectoris, M. Jurine's memoir on	169
Animal economy, Godman's observations on the propriety of explaining its actions, by the assistance of the physical sciences	46
Apparatus, new, for the treatment of fractures of the thigh	231
Apoplexy, observations of M. Serres on	183
Apyre, a new alkaline body	191
Atropia, analysis of	15.

B

Bowels, case of a very extraordinary affection of	369
Bell on the new Italian doctrine of counter-stimulus	18
Belladonna announced as a preservative against scarlet fever	189
Bony tumours, Gibson's history and treatment of	86
Brennan on the efficacy of oleum terebenthinæ in Puerperal Fever	165
Bronchocele, on the use of iodine in	186
Broussais's doctrine of fever, account of	345
Bronchocele successfully treated by seton	421
Black drop, formulæ for preparing	423
Bark, on the exhibition of	427
Balsam copaivæ, convenient mode of exhibiting	428

C

Cæsarean operation successfully performed	190
Caldwell on sympathy	302
Carotid artery, remarks on the British practice of tying	102
Cataract, description of Dr. Gibson's new instrument for	192
Chinese <i>lusus naturæ</i> , account of	78
Chomel's experiment, with the sulphates of quinine and cinchonine	188
Cinchonine, Dr. Chomel's experiments with the sulphate of	<i>ib.</i>
Coindet on the use of iodine in bronchocele	186, 189
Counter-stimulus, new Italian doctrine of	18
Cooper's case, in which numerous calculi were extracted from the urinary bladder without employing cutting instruments	420
Choroid coat of the eye, on the vascular network of the	417
Cold suggested as a means of destroying cancer	418
Cancer, on the possibility of destroying, by <i>intense cold</i>	418
Calculi extracted without the employment of cutting instruments	420
Cubebs recommended in the treatment of gonorrhœa	425
Cinchona, on the exhibition of	427
Carbonate of iron recommended in the treatment of <i>tic-doloureux</i>	428
Cicuta, Orfila's preparation of the extract of	433
Coindet on the use of iodine	429
Cinchonin, analysis of the sulphates of	431
Chemistry, review of Dr. Ure's dictionary of	411

D

Daturium, a new alkali	191
Dickson's account of the yellow fever of Charleston, in 1817	250

E

Earle's apparatus for the treatment of fractures of the thigh	233
Emerson's cases illustrative of the efficacy of sulphurous fumigations in certain diseases	126
Emerson's account of the epidemic fever among the negroes of Philadelphia	194
Emetics, their efficacy in <i>mania à potu</i>	242
Empyreumatic oil successfully employed in preserving mummies	181

INDEX.

443

Epidemic at Natchez in 1817 and 1819	1
Eye, new membrane discovered in the	181
Eye, on the vascular network of the choroid coat of	417
Extracts, new method of preparing	434

F

Fever, intermittent, observations on the cause, character, and treatment of	355
French hospitals, reports on the state of	383
Fever among the negroes of Philadelphia in 1821	194
Fever, yellow, at Charleston, in 1817	250
Fever, account of Broussais's doctrine of	345
Fistula in ano, Dr. Ribes on the seat of	189
Fracture of the thigh, Gibson's reflections on the treat- ment of	217
Ferri, sub-carbonas successfully employed in tic-doloureux	428

G

Gallé's plan of treating psora	127
Gallup's case of an amalgam of tin and mercury retained in the bowels	146
Garnet, amorphous, Seybert's analysis of	247
Gibson's history and treatment of bony tumours	86
Gibson's new instrument for cutting the crystalline lens in all species of cataract	192
Gibson's reflections on the treatment of fractures of the thigh	217
Godman's observations on the propriety of explaining the actions of the animal economy by the assistance of the physical sciences	46
Goitre, successfully treated by seton	421

H

Harris's observations on the cause, character and treatment of intermittent fever	355
Hospitals, French, reports on the state of	383
Hagedorn's apparatus for fractures of the thigh	227
Hartshorn, spirit of, recommended to counteract the inebri- ating effects of spirituous liquors	189
Hemiplegia perfectly cured by sulphurous fumigations	138

INDEX.

445

Meteorological observations at Natchez	17
Mitchell's account of a Chinese monster	78
Murphy's observations on the character and treatment of the spotted fever, as it appeared in the lower northern neck of Virginia, in 1814 and 1815	110
Midwifery, review of Ramsbotham's practical observations on	399
Mercurial ointment, Donovan's method of preparing	428
Mare's milk, beneficial effects of, in tænia	429

N

Nancrede's account of Dr. Broussais's doctrine of fever	345
Natchez, account of the yellow fever at	1
Negroes, Emerson's account of the epidemic fever among the	194
Nitrate of silver, on the use of, in medicine	432

O

Observations on the spotted fever, as it appeared in the lower northern neck of Virginia, in 1814 and 1815	110
Oleum terebinthinæ, its efficacy in puerperal fever	165
Opium, Magendie and Robiquet's experiments on	187
Oste-sarcoma, Gibson's history and treatment of	86
Opium, new preparations of	423, 424
Orfila's method of preparing the extract of hemlock	433

P

Paralysis radically cured by sulphurous fumigations	136, 144
Peruvian bark, when first used in Italy	24
Perlee's account of the yellow fever at Natchez, in 1817 and 1819	1
Physiological experiments of Drs. Tiedemann and Gmelin	149
Prurigo formicans cured by sulphurous fumigations	139
Psora, sulphurous fumigations efficacious in	127
Puerperal fever, the efficacy of oil of turpentine in	165
Puberty, an account of its appearance in a child of three years of age	417
Paralysis successfully treated by nitrate of silver	433
Piper cubeba employed as a remedy for gonorrhœa	425
Phosphorescence of wounds	420

INDEX.

447

S

Serres' observations on apoplexy	183
Scarlet fever, belladonna recommended as a preservative against	189
Seybert's analysis of an amorphous garnet	247
Seybert's analysis of fetid sulphate of barytes	249
Spinal marrow, Dr. Tiedemann's observations on	180
Spotted fever, observations on its character and treatment, as it appeared in the lower northern neck of Virginia, in 1814 and 1815	110
Staughton's observations on mania à potu	238
Sulphurous fumigations, cases illustrative of the efficacy of	126
Syphilis, historical and critical observations on	55, 324
Sulphurous fumigations, report of a French medical tribu- nal in favour of	127
Sulphate of barytes, Seybert's analysis of	249
Swaim's panacea, efficacy of, in chronic diseases	90
Sympathy, Caldwell's thoughts on	302
Silver, on the use of the nitrate of	432
Sulphate of cinchonin, analysis of the	431
Solanum tuberosum, properties of the	425
Scott's case of a separation of a portion of the uterus dur- ing severe labour	422

T

Talicosian operation, account of	21
Thigh, reflections on the fracture of	217
Thommasini's compendium of the new doctrine of counter- stimulus	28
Thyroid gland demonstrated to be a mucous gland in the horse	179
Tiedemann and Gmelin on absorption	149
Tiedemann's observations on the spinal marrow	180
Tænia, beneficial effects of mare's milk in	429

U

Uterus, case of a separation of a portion of, during severe labour	422
Unguentum hydrargyri, Donovan's method of preparing	428





1. The first part of the document is a list of names and titles, including "The Hon. Mr. Justice" and "The Hon. Mr. Justice".

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